FIGURE 1

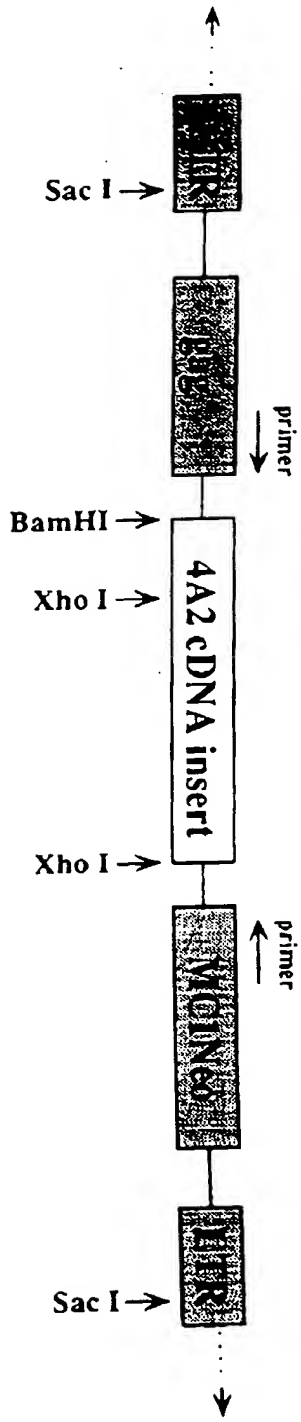


FIGURE 2

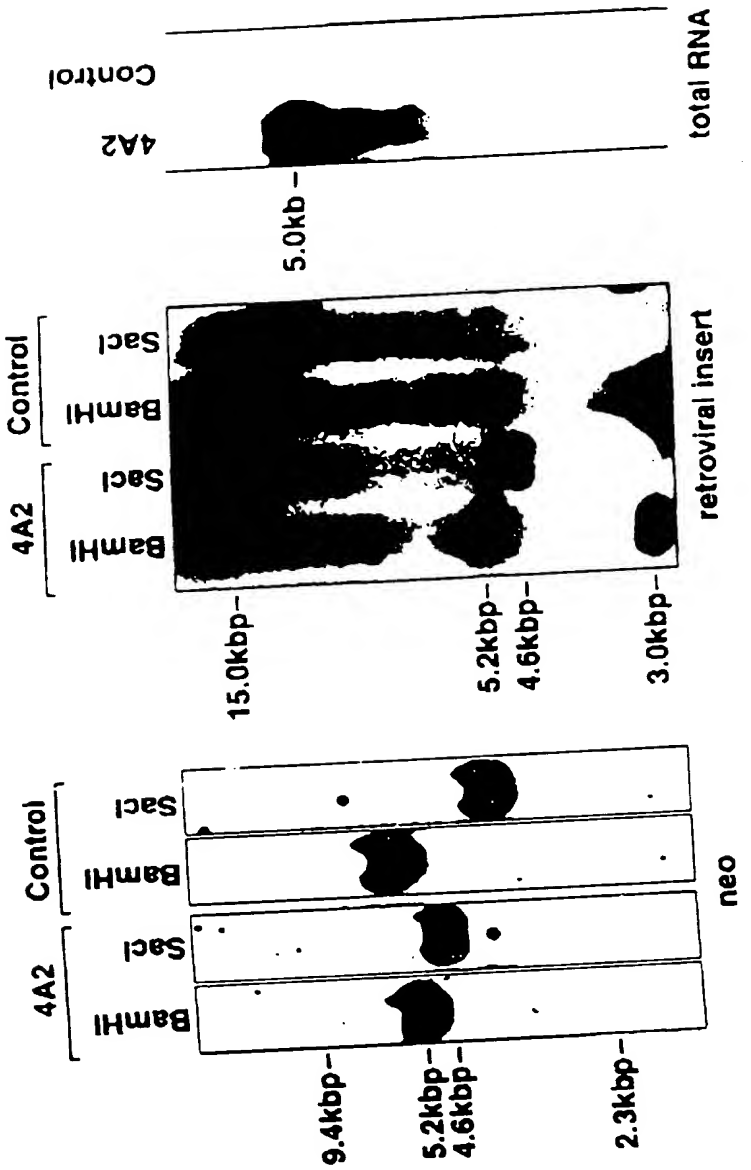
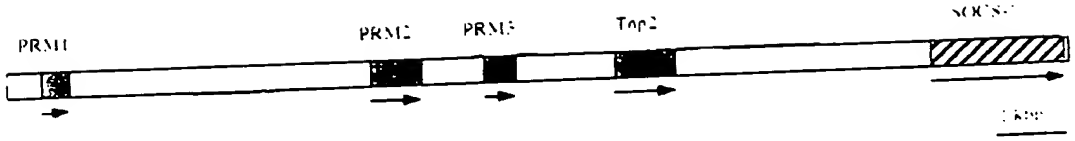

total RNA
Control
4A2
5.0kb
retroviral insert
Control
4A2
SacI
BamHI
SacI
BamHI
15.0kbp
5.2kbp
4.6kbp
3.0kbp
neo
Control
4A2
SacI
BamHI
SacI
BamHI
9.4kbp
5.2kbp
4.6kbp
2.3kbp

FIGURE 3

A



B

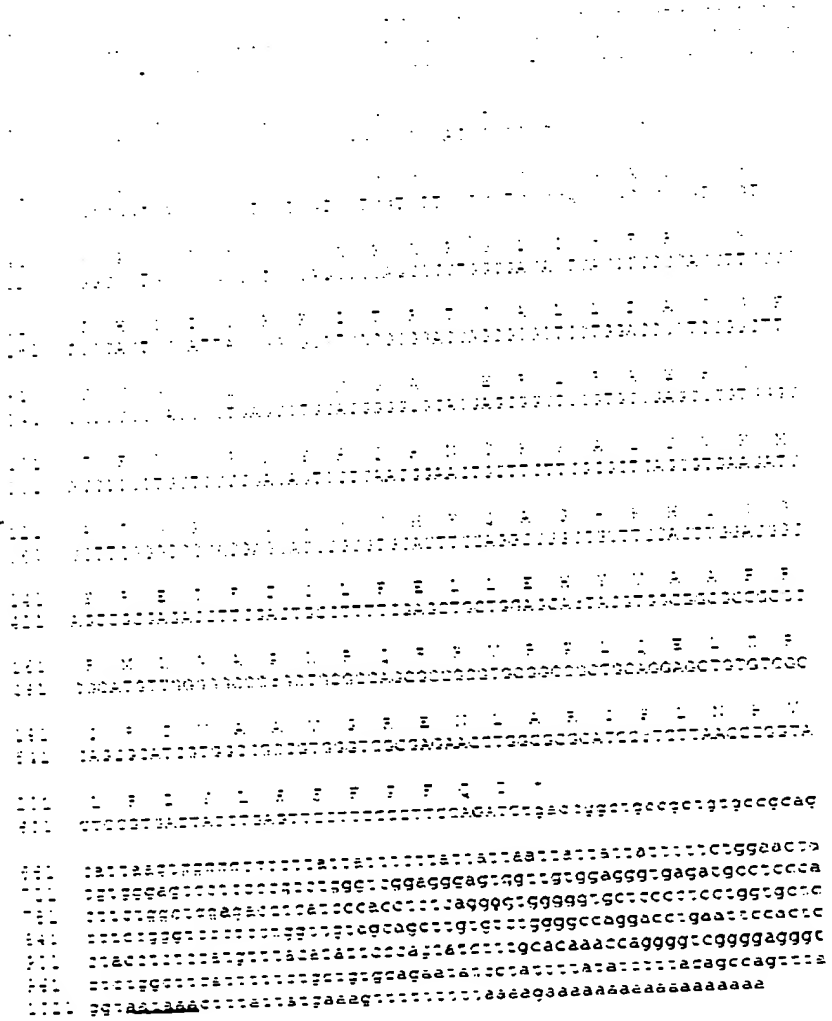


FIGURE 4

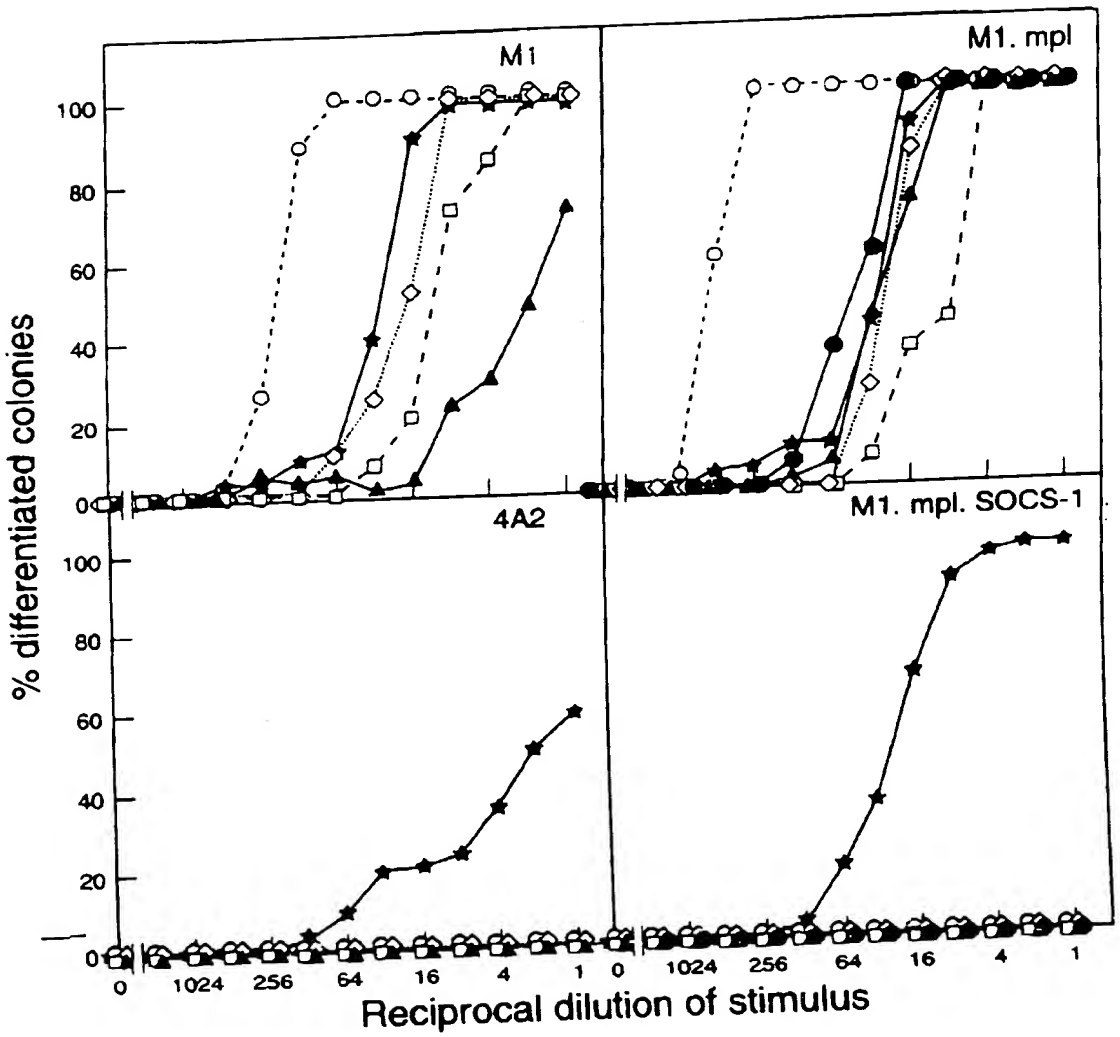

M1
M1. mpl
4A2
M1. mpl. SOCS-1
% differentiated colonies
0
20
40
60
80
100
0
1024
256
64
16
4
1
Reciprocal dilution of stimulus

FIGURE 5

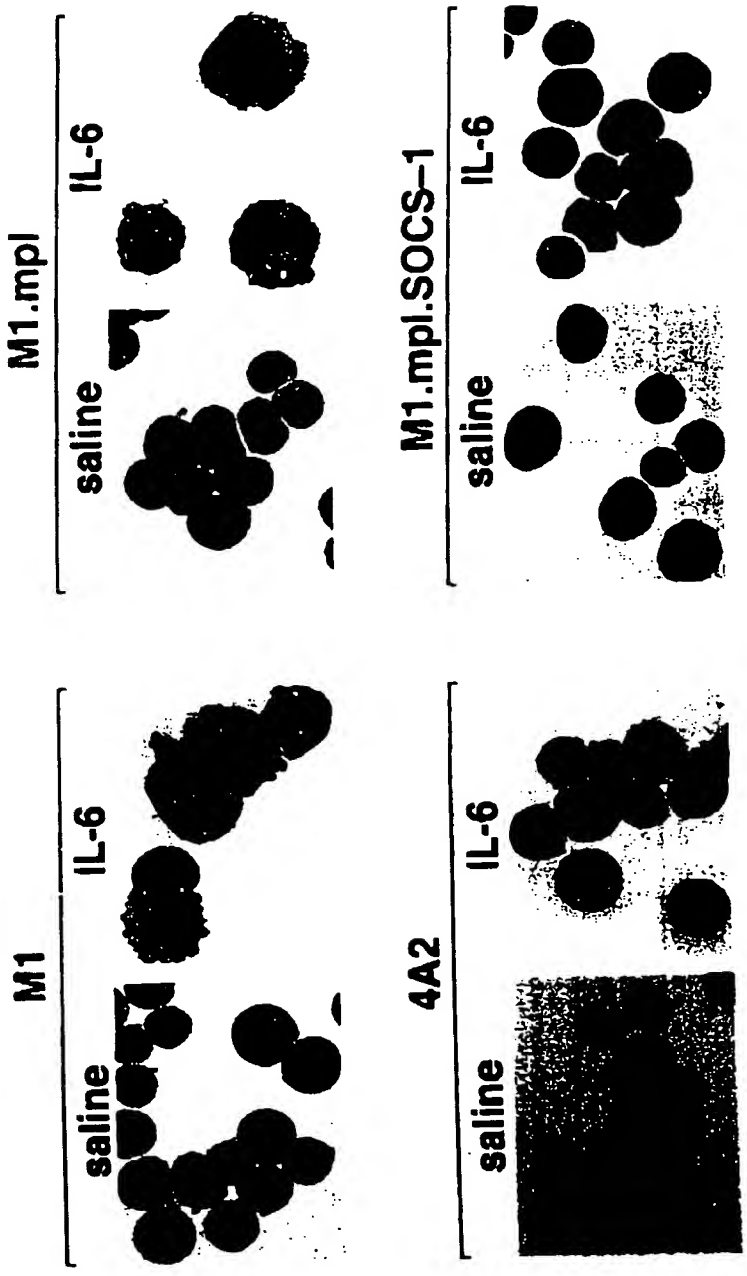

M1.mpl
saline
IL-6
M1.mpl.SOCS-1
saline
IL-6
M1
saline
IL-6
4A2
saline
IL-6

FIGURE 6

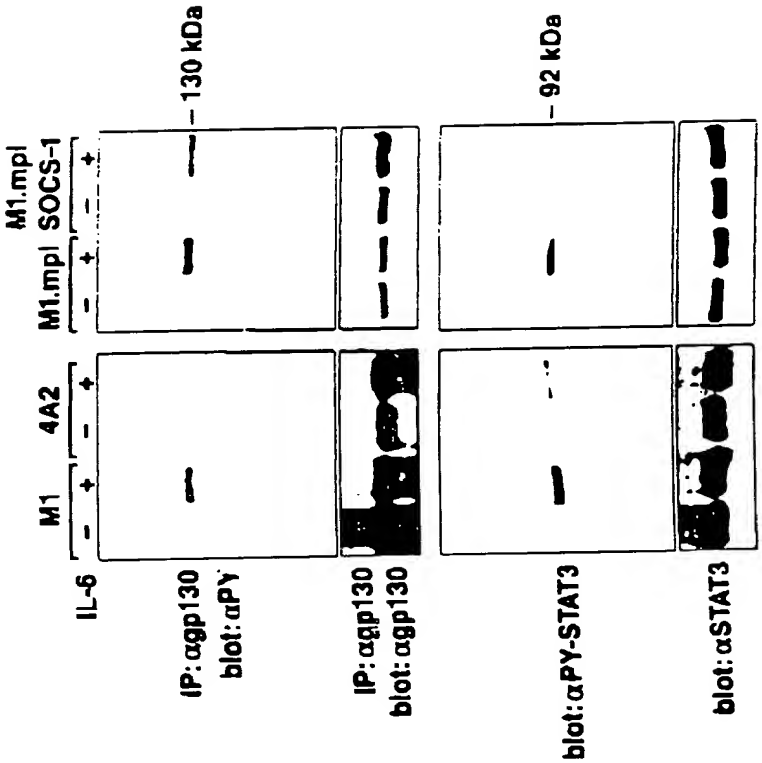

M1.mpl
M1.mpl SOCS-1
130 kDa
92 kDa
M1
4A2
IL-6
IP: αgp130
blot: αPY
IP: αgp130
blot: αgp130
blot: αPY-STAT3
blot: αSTAT3

FIGURE 7A

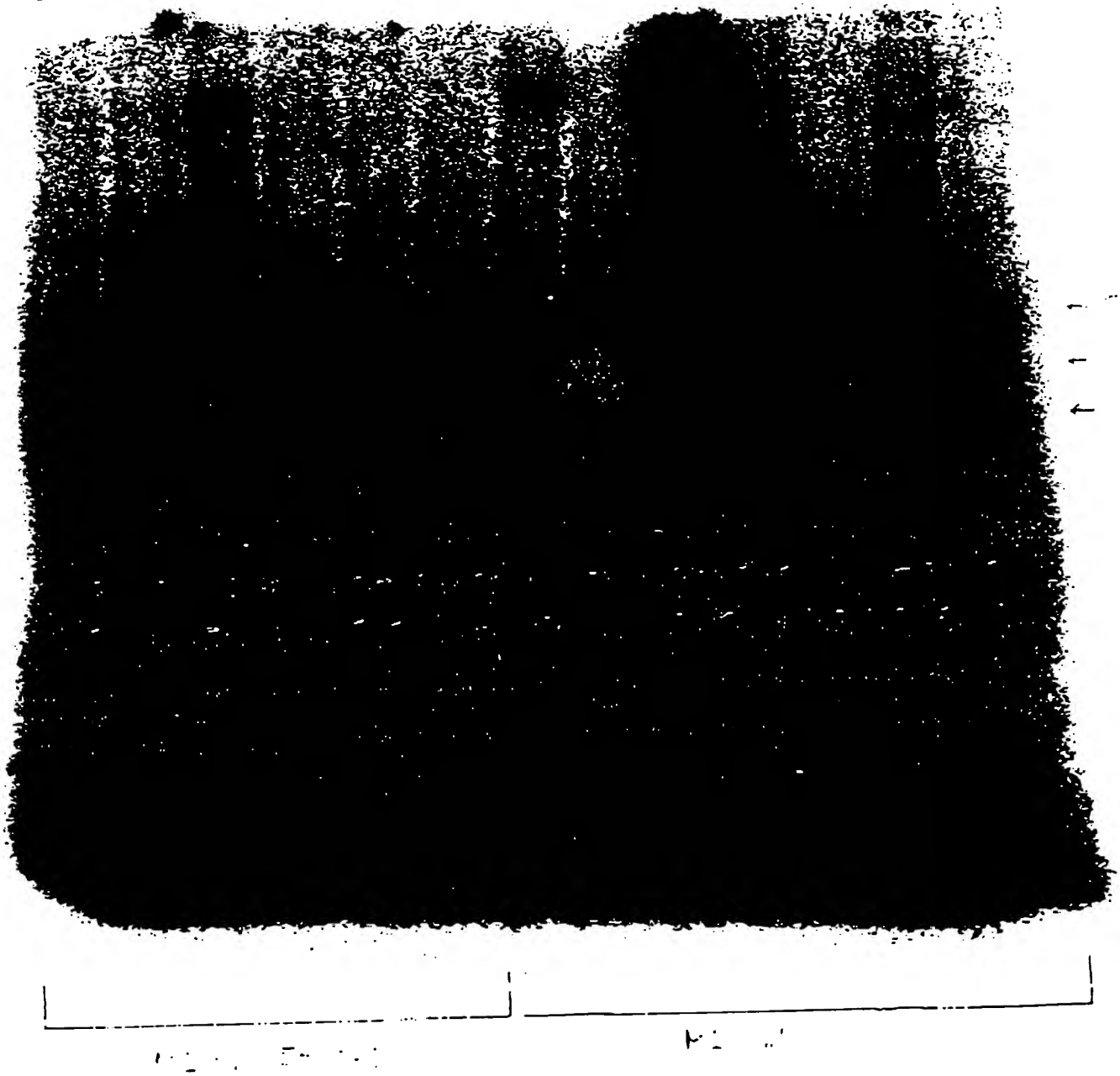
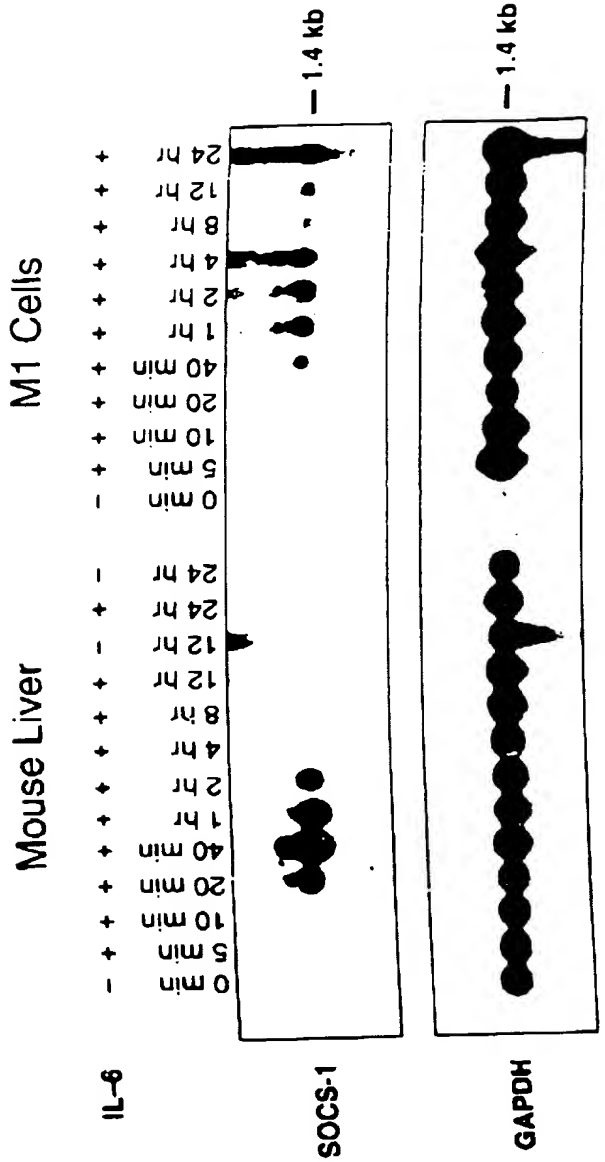


FIGURE 7B

FIGURE 8


Mouse Liver
M1 Cells
IL-6
0 min
5 min
10 min
20 min
40 min
1 hr
2 hr
4 hr
8 hr
12 hr
12 hr
24 hr
24 hr
0 min
5 min
10 min
20 min
40 min
1 hr
2 hr
4 hr
8 hr
12 hr
24 hr
1.4 kb
SOCS-1
1.4 kb
GAPDH

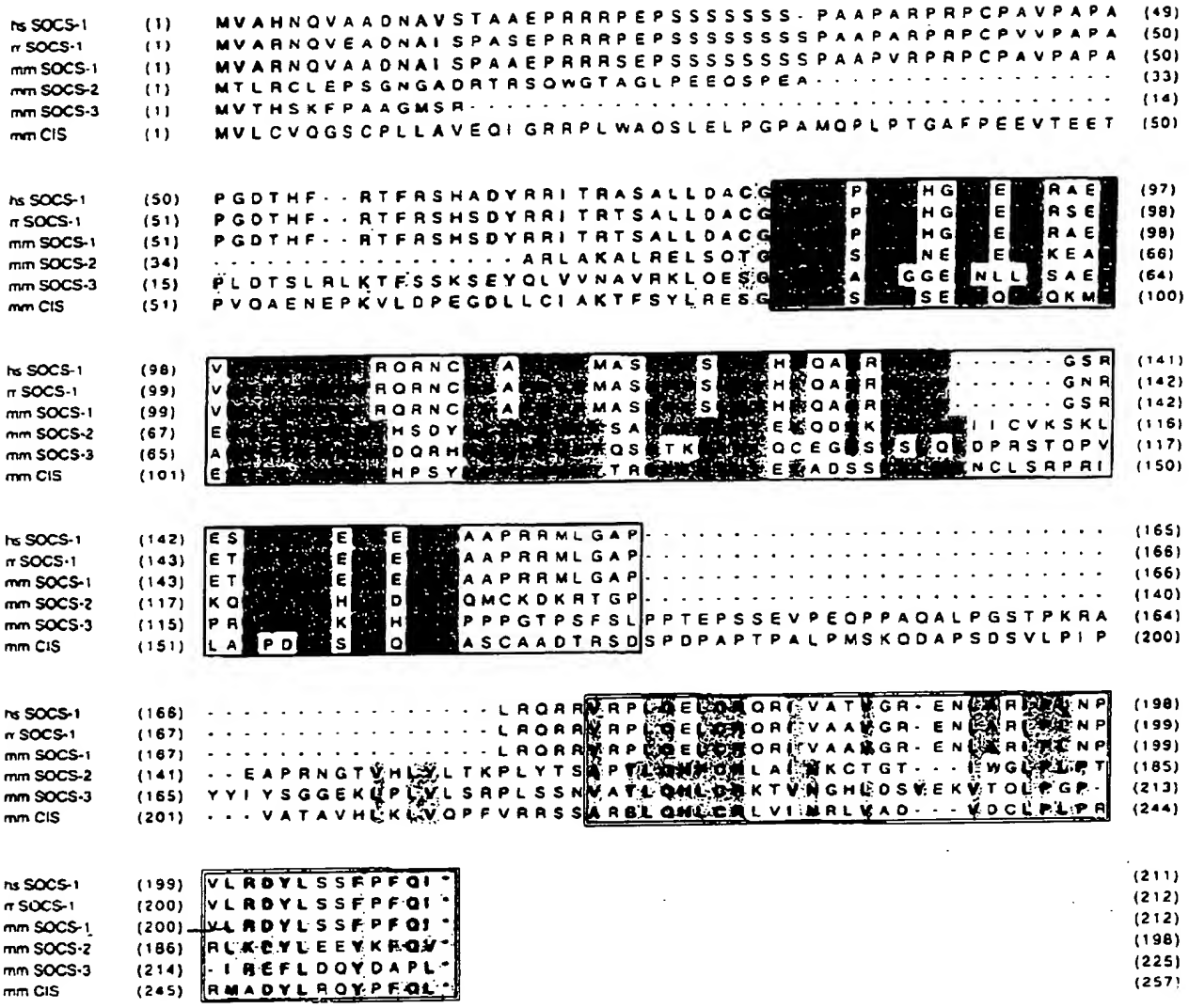

hs SOCS-1 (1) MVAHNQVAADNAVSTAAEPRRRPEPSSSSSSS-PAAPARPRPCPAVPAPA (49)
rr SOCS-1 (1) MVARNQVEADNAISPASEPRRRPEPSSSSSSSSPAAPARPRPCPVVPAPA (50)
mm SOCS-1 (1) MVARNQVAADNAISPAAEPRRRSEPSSSSSSSSPAAPVRPRPCPAVPAPA (50)
mm SOCS-2 (1) MTLRCLEPSGNGADRTRSQWGTAGLPEEQSPEA---------- (33)
mm SOCS-3 (1) MVTHSKFPAAGMSR---------- (14)
mm CIS (1) MVLCVQGSCPLLAVEQIGRRPLWAQSLELPGPAMQPLPTGAFPEEVTEET (50)
hs SOCS-1 (50) PGDTHF--RTFRSHADYRRITRASALLDACG (97)
rr SOCS-1 (51) PGDTHF--RTFRSHSDYRRITRTSALLDACG (98)
mm SOCS-1 (51) PGDTHF--RTFRSHSDYRRITRTSALLDACG (98)
mm SOCS-2 (34) ----------ARLAKALRELSQTG (66)
mm SOCS-3 (15) PLDTSLRLKTFSSKSEYQLVVNAVRKLQESG (64)
mm CIS (51) PVQAENEPKVLDPEGDLLCIAKTFSYLRESG (100)
hs SOCS-1 (98) (141)
rr SOCS-1 (99) (142)
mm SOCS-1 (99) (142)
mm SOCS-2 (67) (116)
mm SOCS-3 (65) (117)
mm CIS (101) (150)
hs SOCS-1 (142) (165)
rr SOCS-1 (143) (166)
mm SOCS-1 (143) (166)
mm SOCS-2 (117) (140)
mm SOCS-3 (115) (164)
mm CIS (151) (200)
hs SOCS-1 (166) (198)
rr SOCS-1 (167) (199)
mm SOCS-1 (167) (199)
mm SOCS-2 (141) (185)
mm SOCS-3 (165) (213)
mm CIS (201) (244)
hs SOCS-1 (199) (211)
rr SOCS-1 (200) (212)
mm SOCS-1 (200) (212)
mm SOCS-2 (186) (198)
mm SOCS-3 (214) (225)
mm CIS (245) (257)

Figure 9

FIGURE 10

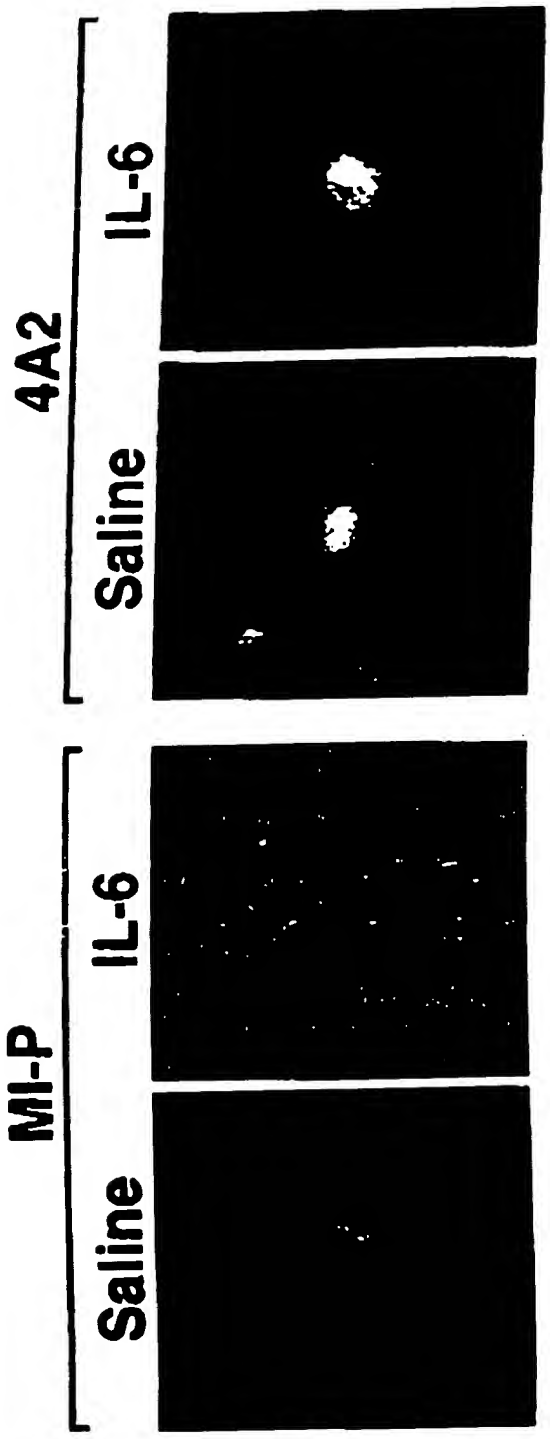


FIGURE 11

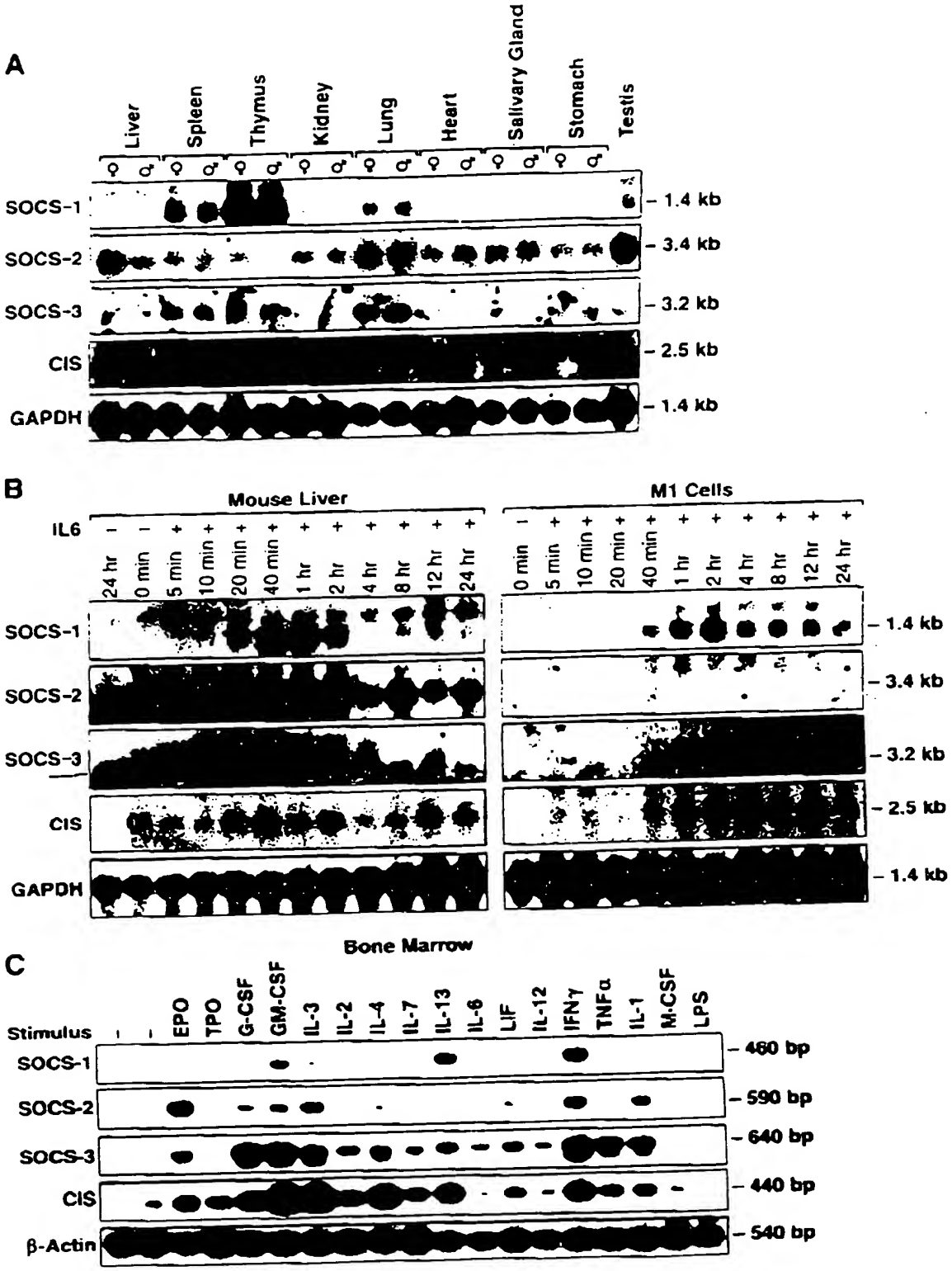
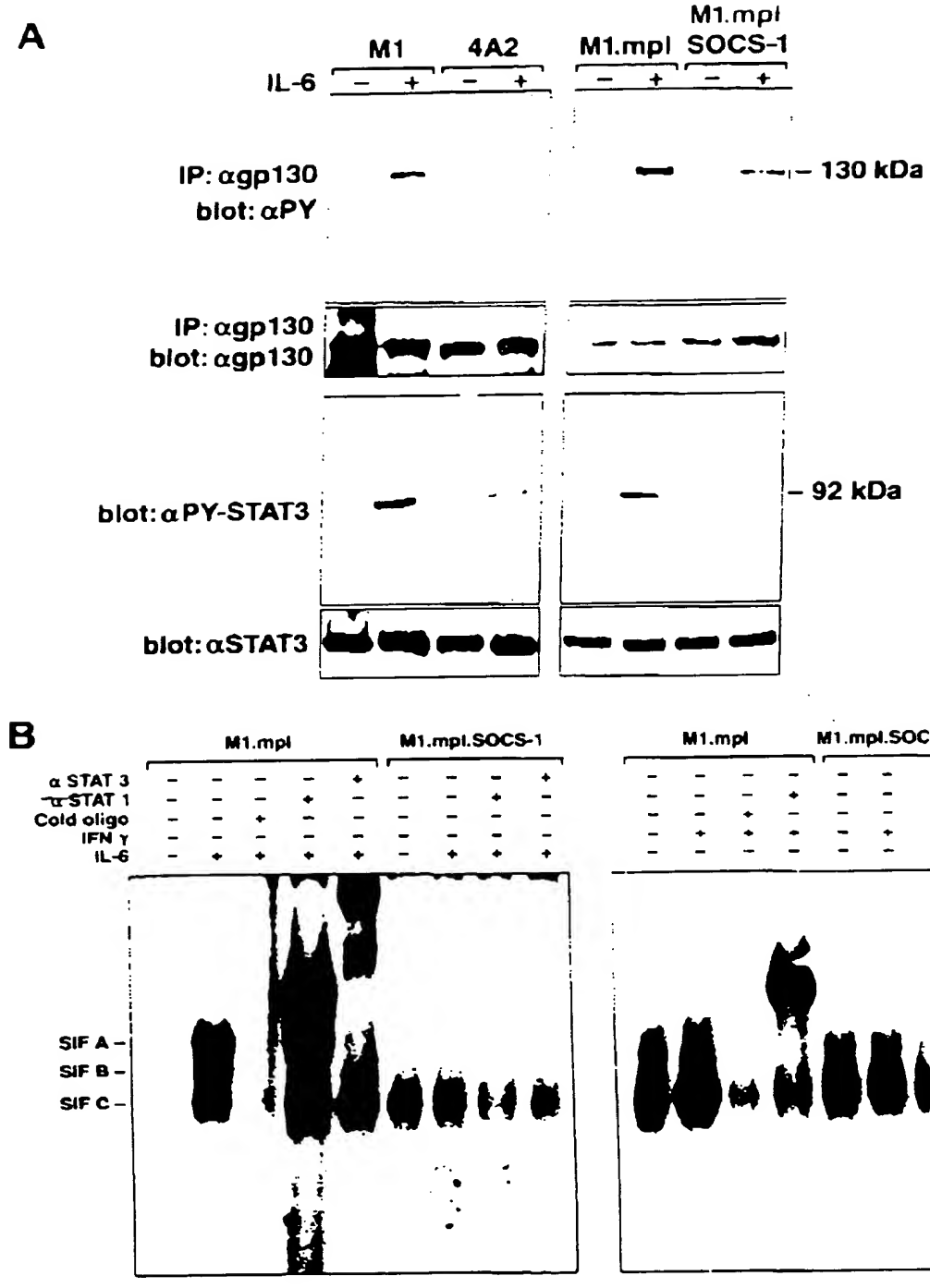

A
Liver
Spleen
Thymus
Kidney
Lung
Heart
Salivary Gland
Stomach
Testis
SOCS-1
SOCS-2
SOCS-3
CIS
GAPDH
1.4 kb
3.4 kb
3.2 kb
2.5 kb
1.4 kb
B
Mouse Liver
M1 Cells
IL6
24 hr
0 min
5 min
10 min
20 min
40 min
1 hr
2 hr
4 hr
8 hr
12 hr
24 hr
SOCS-1
SOCS-2
SOCS-3
CIS
GAPDH
1.4 kb
3.4 kb
3.2 kb
2.5 kb
1.4 kb
C
Bone Marrow
Stimulus
EPO
TPO
G-CSF
GM-CSF
IL-3
IL-2
IL-4
IL-7
IL-13
IL-6
LIF
IL-12
IFNγ
TNFα
IL-1
M-CSF
LPS
SOCS-1
SOCS-2
SOCS-3
CIS
β-Actin
460 bp
590 bp
640 bp
440 bp
540 bp

FIGURE 12


A
M1
4A2
M1.mpl
M1.mpl SOCS-1
IL-6
IP: αgp130
blot: αPY
130 kDa
IP: αgp130
blot: αgp130
blot: αPY-STAT3
92 kDa
blot: αSTAT3
B
M1.mpl
M1.mpl.SOCS-1
α STAT 3
α STAT 1
Cold oligo
IFN γ
IL-6
SIF A
SIF B
SIF C

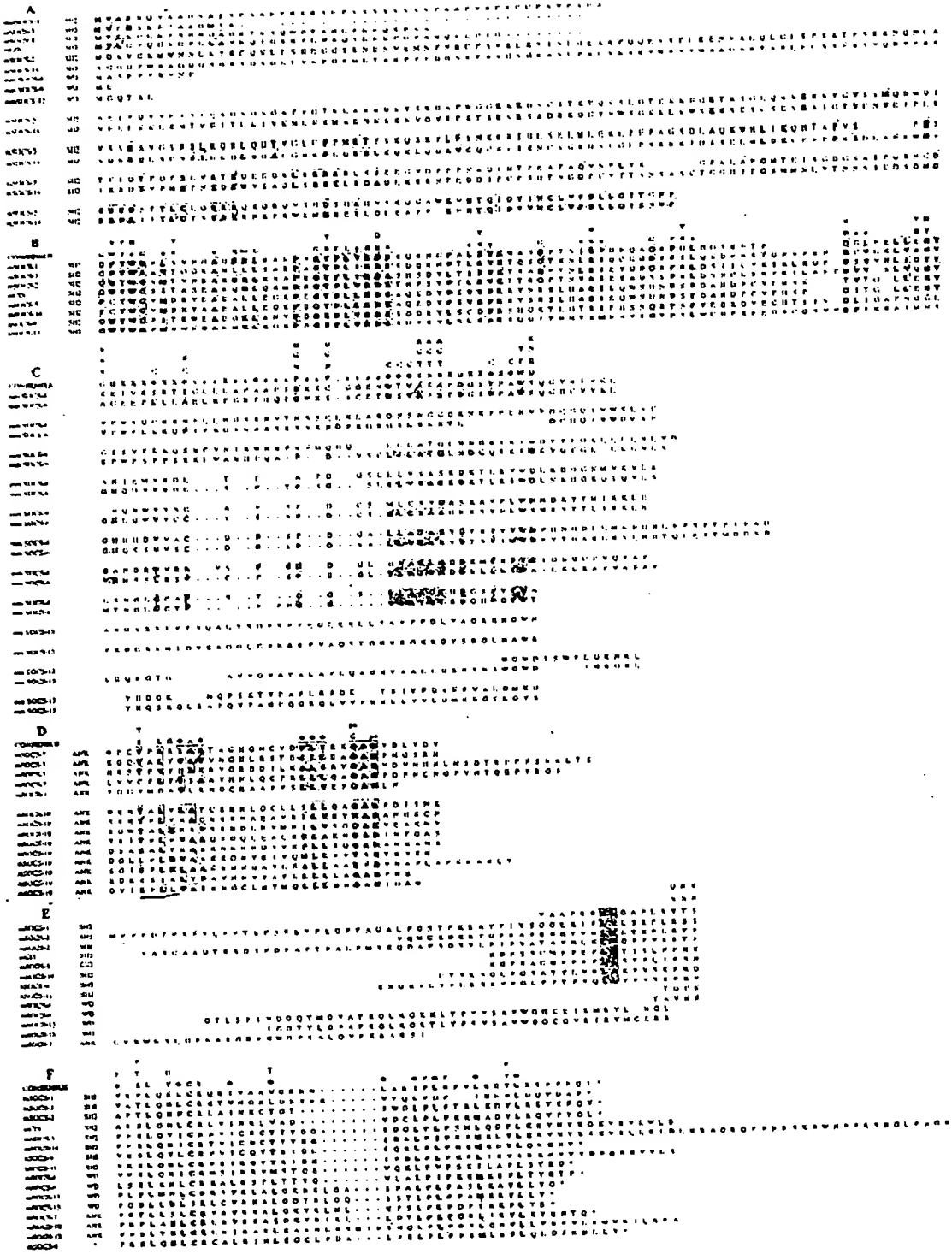


Figure 13

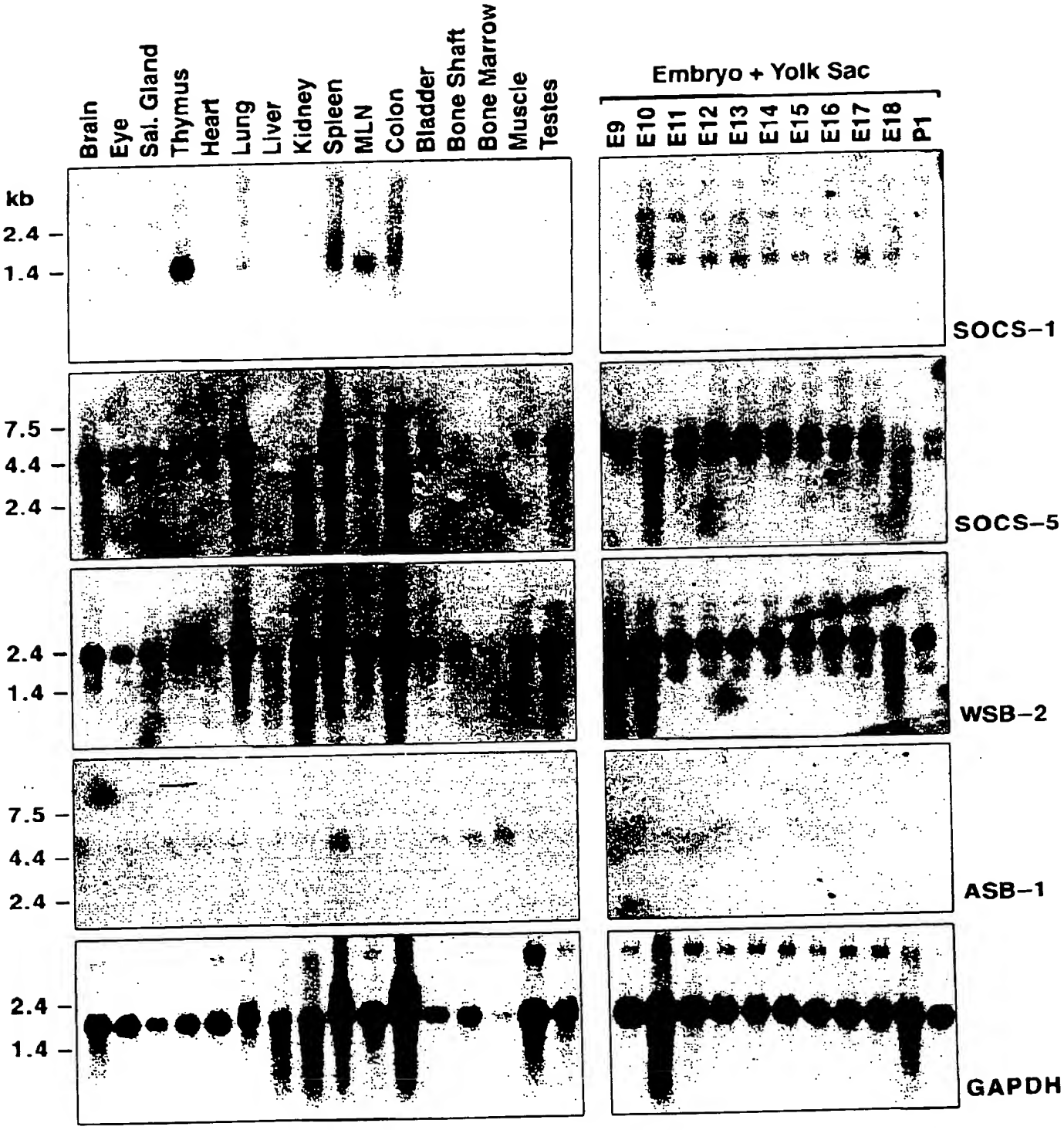

Brain
Eye
Sal. Gland
Thymus
Heart
Lung
Liver
Kidney
Spleen
MLN
Colon
Bladder
Bone Shaft
Bone Marrow
Muscle
Testes
Embryo + Yolk Sac
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
P1
kb
2.4
1.4
SOCS–1
7.5
4.4
2.4
SOCS–5
2.4
1.4
WSB–2
7.5
4.4
2.4
ASB–1
2.4
1.4
GAPDH

FIGURE 14A

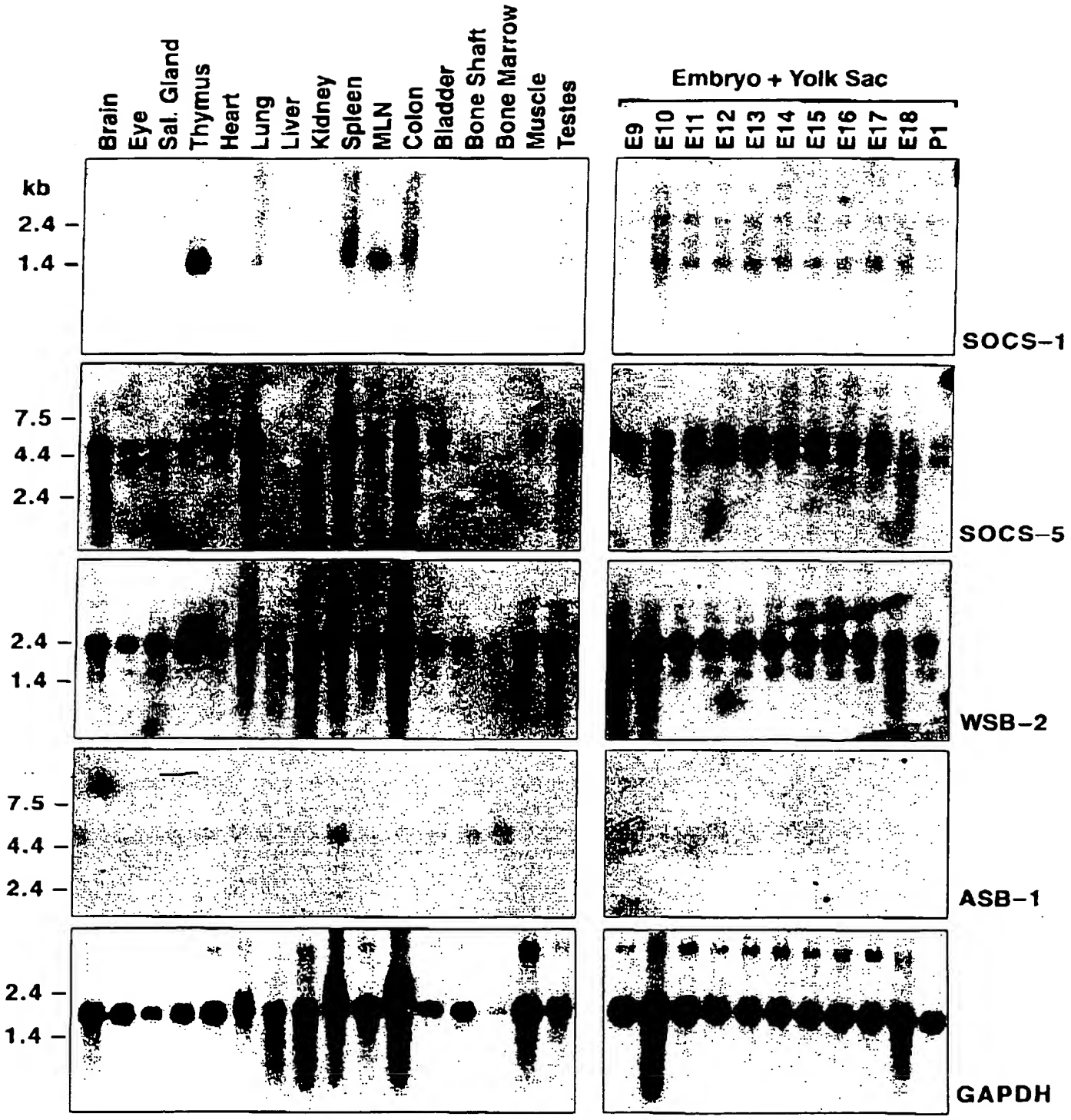

Brain
Eye
Sal. Gland
Thymus
Heart
Lung
Liver
Kidney
Spleen
MLN
Colon
Bladder
Bone Shaft
Bone Marrow
Muscle
Testes
Embryo + Yolk Sac
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
P1
kb
2.4
1.4
SOCS-1
7.5
4.4
2.4
SOCS-5
2.4
1.4
WSB-2
7.5
4.4
2.4
ASB-1
2.4
1.4
GAPDH

FIGURE 14B

FIGURE 15

cgaattccgggcgggctgtgtgagtctgtgagtggaaggcgcgccggctcttttgtctgagtgtgacccggtggctttgtt
ccaggcattccggtgatttcctccgggcagtccgcagaagccgcagcggccgcccgcgctctctctgcagtctccacacc
cgggagagcctgagcccgcgtcacgcccctcagcccccgctgagtcccttctctgttgtcgcgtccgaatcgagttcccg
gaatcagacggtgccccatagATGGCCAGCTTTCCCCCGAGGGTTAACGAGAAAGAGATCGTGAGATCACGTACTATAGG
GGAACTCTTGGCTCCAGCAGCTCCTTTTGACAAGAAATGTGGTGGTGAGAACTGGACGGTTGCTTTTGCTcCTGATGGTT
CCTACTTTGCGTGGTCACAAGGATATCGCATAGTGAAGCTTGTCCCGTGGTCCCAGTGCCGTAAGAACTTTCTTTTGCAT
GGTTCCAAAAATGTTACCAATTCAAGCTGTCTAAAATTGGCAAGACAAAACAGTAATGGTGGTCAGAAAAACAAGCCTCC
TGAGCACGTTATAGACTGTGGAGACATAGTCTGGAGTCTTGCTTTTGGGTCTTCAGTTCCAGAAAAACAGAGTCGTTGCG
TTAATATAGAATGGCATCGGTTCCGATTTGGACAGGATCAGCTACTCCTTGCCACAGGATTAAACAATGGTCGCATCAAA
ATCTGGGATGTATATACAGGAAAACTCCTCCTTAATTTGGTAGACCACATTGAAATGGTTAGAGATTTAACTTTTGCTCC
AGATGGGAGCTTACTCCTTGTATCAGCTTCAAGAGACAAAACTCTAAGAGTGTGGGACCTGAAAGATGATGGAAACATGG
TGAAAGTATTGCGGGCACATCAGAATTGGGtGtACAGTTGTGCATTcTCTCCcGACTGTTcTATGCTGTGTTCAGTgGGC
GCCAGTAAAGCAGTTTTcCTTTGGAATATGGATAAAtACACCATGATTAGGAAGctGGAAGGTCATCACCATGATGTTGT
AGCTTGTGACTTTTCTCCTGATGGAGCATTGCTAgCTACTGCATCCTATGACACTCGTGTGTATGTCTGGGATCCACACA
ATGGAGACCTTCTGATGGAGTTTGGGCACCTGTTTCCCTCGCCCACTCCAATATTTGCTGGAGGAGCAAATGACCGATGG
GTGAGAGCTGTGTCTTTCAGTCATGATGGACTGCATGTTGCCAGCCTTGCTGATGATAAAATGGTGAgGTTCTGGAGAAT
CGATGAGGATTGTCCGGTACAAGTTGCACCTTTGAGCAATGGTCTTTGCTGTGCCTTTTCTACTGATGGCAGTGTTTTAG
CTGCTGGGACACATGATGGAAGTGTGTATTTTTGGGCCACTCCAAGGCAAGTCCCTAgCCTTCAACATATATGTCGCATG
TCAATCCGAAGAGTGATGTCCACCCAAGAAGTCCAAAAACTGCCTGTTCCTTCCAAAATATTGGCGTTTCTCTCCTACCG
CGGTTAGactgaagactgcctttcctggtaggcctgccagacagagcgccctttacaagacacacctcaagctttacctc
gtgccgaatt

FIGURE 16

MASFPPRVNEKEIVRSRTIGELLAPAAPFDKKCGGENWTVAFAPDGSYFAWSQGYRIVKLVPWSQCRKNFLLHGSKNVTN
SSCLKLARQNSNGGQKNKPPEHVIDCGDIVWSLAFGSSVPEKQSRCVNIEWHRFRFGQDQLLLATGLNNGRIKIWDVYTG
KLLLNLVDHIEMVRDLTFAPDGSLLLVSASRDKTLRVWDLKDDGNMVKVLRAHQNWVYSCAFSPDCSMLCSVGASKAVFL
WNMDKYTMIRKLEGHHHDVVACDFSPDGALLATASYDTRVYVWDPHNGDLLMEFGHLFPSPTPIFAGGANDRWVRAVSFS
HDGLHVASLADDKMVRFWRIDEDCPVQVAPLSNGLCCAFSTDGSVLAAGTHDGSVYFWATPRQVPSLQHICRMSIRRVMS
TQEVQKLPVPSKILAFLSYRG*

Sheet 9 of 9

31-10-97 16:46 ;
#2'8.365
JSTCOT 09529680

FIGURE 17

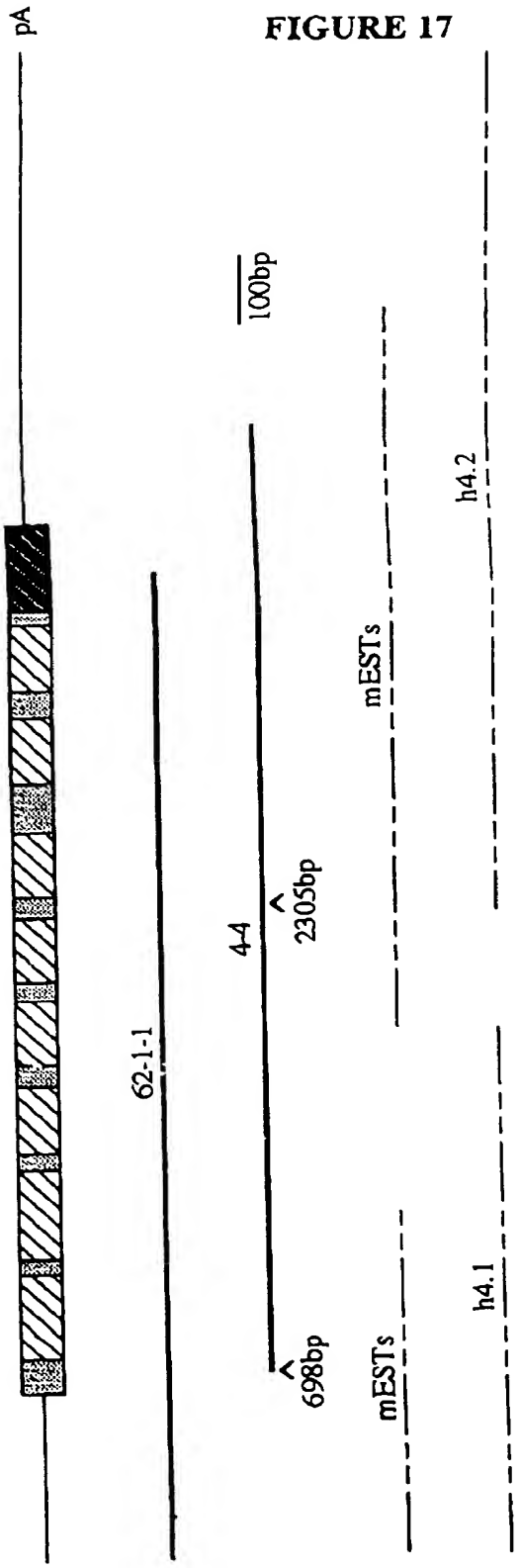


FIGURE 18

h4.1

CTGTCTTCCTCCGCAGCGCGAGGCTGGGTACAGGGTCTATTGTCTGTGGTTGACTCCGTACTTTGGTCTGAGGCCTTCGG
GAGCTTTCCCGAGGCAGTTAGCAGAAGCCGCAGCGACCGCCCCCGCCCGTCTCCTCTGTCCCTGGGCCCGGGAGACAAAC
TTGGCGTCACGCCCTCAGCGGTCGCCACTCTCTTCTCTGTTGTTGGGTCCGCATCGTATTCCCGGAATCAGACGGTGCCC
CATAGATGGCCAGCTTTCCCCCGAGGGTCAACGAGAAAGAGATCGTGAGATCACGTACTATAGGTGAACTTTTAGCTCCT
GCAGCTCCTTTTGACAAGAAATGTGGTCGTGAAAATTGGACTGTTGCTTTTGCTCCAGATGGTTCATACTTTGCTTGGTC
ACAAGGACATCGCACAGTAAAGCTTGTTCCGTGGTCCCAGTGCCTTCAGAACTTTCTCTTGCATGGCACCAAGAATGTTA
CCAATTCAAGCAGTTTAAGATTGCCAAGACAAAATAGTGATGGTGGTCAGAAAAATAAGCCTCGTGACATATTATAGACT
GTGGAGATATAGTCTGGAGTCTTGCTTTTGGGTCATCAGTTCCAGAAAAACAGAGTCGCTGTGTAAATATAGAATGGCAT
CGCTTCAGATTTGGACAAGATCAGCTACTTCTTGCTACAGGGTTGAACAATGGGCGTATCAAAATATGGGATGTATATMC
AGGAAACTCCTCCTTAACTTGGTAGATCATACTGAAGTGGTCAGAGATTTAACTTTTGCTCCAG

h4.2

CTCTGTATGTCTGAATGAAGCTATAACATTTGCCTTTTTATTGCAGGTTTTCCTTTGGAATATGGATAAATACACCATGA
TACGGAAACTAGAAGGACATCACCATGATGTGGTAGCTTGTGACTTTTCTCCTGATGGAGCATTACTGGCTACTGCATCT
TATGATACTCGAGTATATATCTGGGATCCACATAATGGAGACATTCTGATGGAATTTGGGCACCTGTTTCCCCCACCTAC
TCCAATATTTGCTGGAGGAGCAAATGACCGGTGGGTACGATCTGTATCTTTTAGCCATGATGGACTGCATGTTGCAAGCC
TTGCTGATGATAAAATGGTGAGGTTCTGGAGAATTGATGAGGATTATCCAGTGCAAGTTGCACCTTTGAGCAATGGTCTT
TGCTGTGCCTTCTCTACTGATGGCAGTGTTTTAGCTGCTGGGACACATGACGGAAGTGTGTATTTTTGGGCCACTCCACG
GCAGGTCCCTAGCCTGCAACATTTATGTCGCATGTCAATCCGAAGAGTGATGCCCACCCAAGAAGTTCAGGAGCTGCCGA
TTCCTTCCAAGCTTTTGGAGTTTCTCTCGTATCGTATTTAGAAGATTCTGCCTTCCCTAGTAGTAGGGACTGACAGAATA
CACTTAACACAAACCTCAAGCTTTACTGACTTCAATTATCTGTTTTTAAAGACGTAGAAGATTTATTTAATTTGATATGT
TCTTGTACTGCATTTTGATCAGTTGAGCTTTTAAAATATTATTTATAGACAATAGAAGTATTTCTGAACATATCAAATAT
AAATTTTTTTAAAGATCTAACTGTGAAAACATACATACCTGTACATATTTAGATATAAGCTGCTATATGTTGAATGGACC
CTTTTGCTTTTCTGATTTTTAGTTCTGACATGTATATATTGCTTCAGTAGAGCCACAATATGTATCTTTGCTGTAAAGTG
CAAGGAAATTTTAAATTCTGGGACACTGAGTTAGATGGTAAATACTGACTTACGAAAGTTGAATTGGGTGAGGCGGGCAA
ATCACCTGAGGTCAGCAGTTTGAGACTAGCCTGGCAAACATGATGAAACCCTGTCTCTACTAAAAATACAAAAAAAAAAA
AA

Doc#: 6,969,589

26TEOT" 09529680

SOCS5

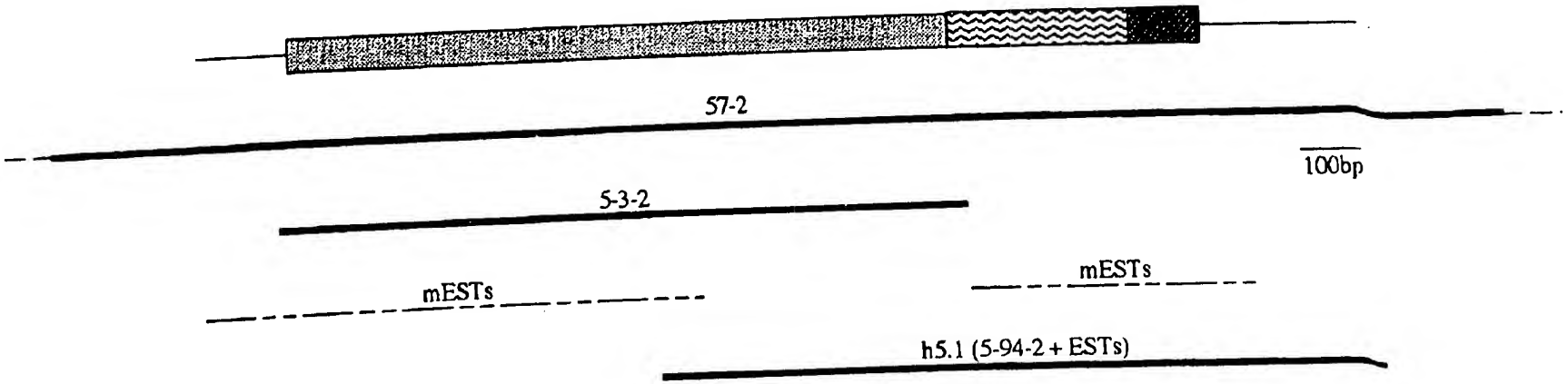


FIGURE 19

FIGURE 20A

09950360 - 050304

FIGURE 20B

MDKVGKMWNNLKYRCQNLFSHEGGSRNENVEMNPNRCPSVKEKSISLGEAAPQQESSPLRENVALQLGLSPSKTFSRRNQ
NCAAEIPQVVEISIEKDSDSGATPGTRLARRDSYSRHAPWGGKKKHSCSTKTQSSLDTEKKFGRTRSGLQRRERRYGVSS
MQDMDSVSSRAVGSRSLRQRLQDTVGLCFPMRTYSKQSKPLFSNKRKIHLSELMLEKCPFPAGSDLAQKWHLIKQHTAPV
SPHSTFFDTFDPSLVSTEDEEDRLRERRRLSIEEGVDPPPNAQIHTFEATAQVNPLYKLGPKLAPGMTEISGDGSAIPQX
NCDSEEDSTTLCLQSRRQKQRQVSGDSHAHVSRQGAWKVETQIDYIHCLVPDLLQITGNPCYWGVMDRYEAEALLEGKPE
GTFLLRDSAQEDYLFSVSFRRYNRSLHARIEQWNHNFSFDAHDPCVFHSSXVTGLLEHYKDPSSCMFFEPLLTISLNRTF
PFSLQYICRAVICRCTTYDGIDGLPLPSMLQDFLKEYHYKQKVRVRWLERXPVKAK*

FIGURE 21

GATTAAACAGCATACAGCTCCTGTGAGCCCACATTCAACATTTTTTGATACrTTTGATCCATCTTTGGTTTCTACAGAAG
ATGAAGAAGATAGGCTTAGAGAGAGAAGGCGGCTTAGTATTGAAGAAGGGGTTGATCCCCCTCCCAATGCACAAATACAT
ACATTTGAAGCTACTGCACAGGTTAATCCATTATwTAAACTGGGACCAAAATTAGCTCCTGGAATGACTGAAATAAGTGG
GGACAGTTCTGCAATTCCACAAGCTAATTGTGACTCGGAAGAGGATACAACCACCCTGTGyTTGCAGTCACGGAGGCAGA
AGCAGCGTCAGATATCTGGAGACAGCCATACCCATGTTAGCAGACAGGGAGCTTGGAAAGTCCACACACAGATTGATTAC
ATACACTGCTTCGTGCCTGATTTGCTTCAAATTACAGGGAATCCCTGTTACTGGGGAGTGATGGACCGTTATGAAGCAGA
AGCCCTTCTCGAAGGGAAACCTGAAGGCACGTTTTTGCTCAGGGACTCTGCGCAAGAGGACTACTTCTTCTCTGTGAGCT
TCCGCCGATACAACAGATCCCTGCATGCCCGAATTGAGCAGTGGAATCACAACTTTAGTTTCGACGCCCATGACCCGTGT
GTATTTCACTCCTCCACTGTAACGGGACTTTTAGAACATTATAAAGATCCCAGTTCGTGCATGTTTTTTGAACCATTGCT
TACTATATCACTAAATAGGACTTTCCCTTTTAGCCTGCAGTATATCTgTcGCGCGGTAATCTGCAGGTGCACTACGTATG
ATGGAATTGATGGGCTCCCTCTACCCTCAATGTTACAGGATTTTTTAAAAGAGTATCATTATAAACAAAAAGTTAGAGTT
CGCTGGTTGGaACGAGAACCAGTCAAGGCAAAGTAAACTCTCCGGTCCCCAAAGGgTGTTAACTAGGTCCGCTTTCATGT
GCATCAGACAGTACACCTATAGCAAGCACACGTAGCAGTGTTAGGCTTTTTCATACAGTATGTAAGcTTAGTGTTAGTAT
CTGTCAGAtGCTACCTGCTGTTACTTATTCAGATAAACATGGtGCCTATTGGAACAATAGcGGATAGAGCTACAGGTGTT
CAGTAAGACTACAAAAACATTTTGCCTATTTCGCTAACAGTTTGGTTTTTAATGGCTGTGGtATTTGAGTGAGGCAACTC
TGGGGCATTTGTTATGAAGAAATG

SOCS6

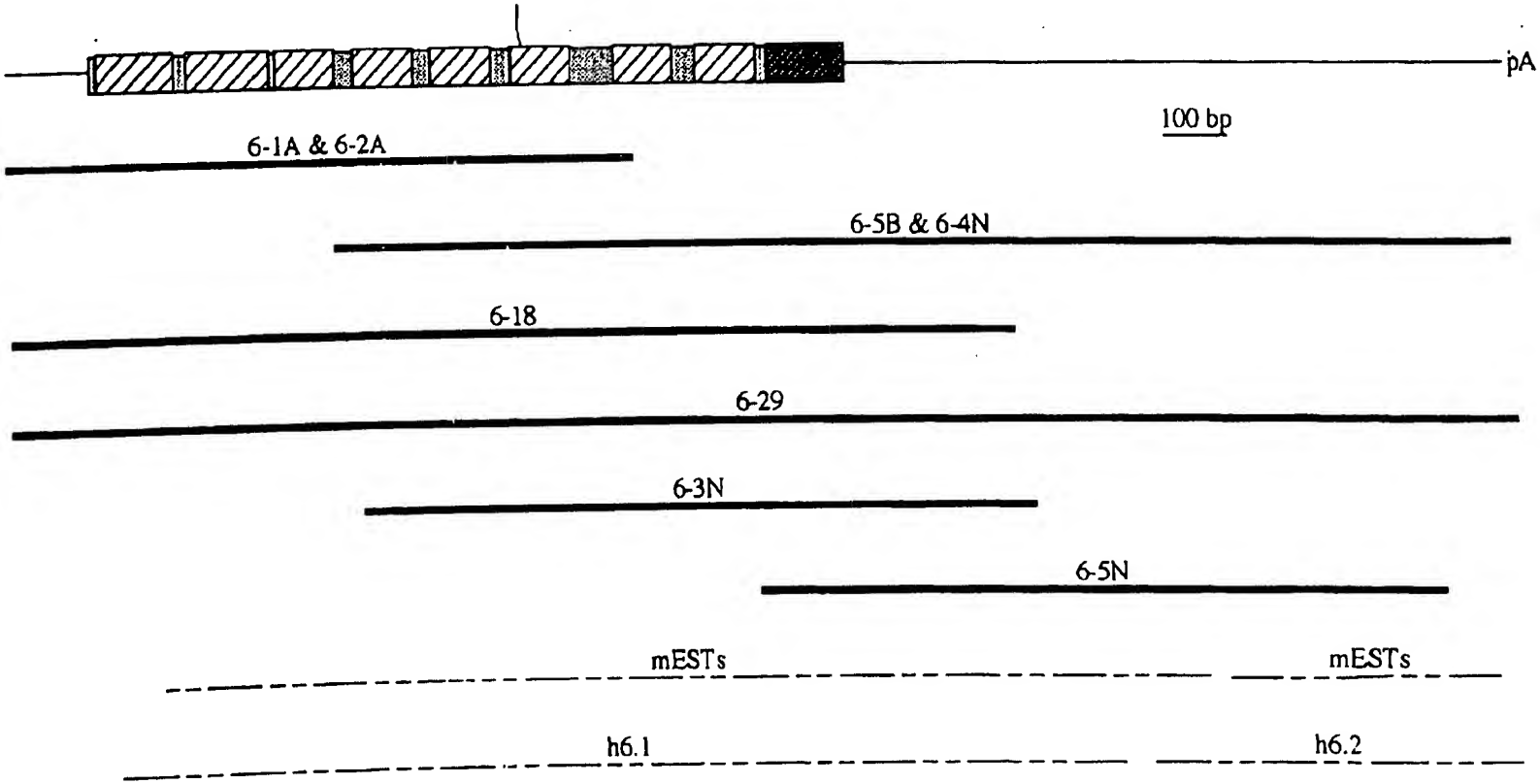


FIGURE 22

FIGURE 23A

ggcacgaggcggtggtggcggcggcgggcgcggccgcggcggggcgggcgcggaATGAAGGCCCACGGCCCTGGGGGCTG
AGGCGCCCGCCGCCTGGGGCGGGCCGCGCGTCCTCATGGAGGCCGGAGAGGAGCCGCTGCTGCTGGCTGAACTCAAGCCT
GGGCGCCCCCACCAGTTCGACTGGAAGTCAAGCTGCGAGACCTGGAGCGTGGCCTTCTCGCCAGACGGTTCCTGGTTCGC
CTGGTCTCAAGGACACTGCGTGGTCAAGCTGGTCCCCTGGCCCTTAGAGGAACAGTTCATCCCTAAAGGATTCGAAGCCA
AGAGCCGAAGCAGCAAGAATGACCCAAAAGGACGGGGCAGTCTGAAGGAGAAGACGCTGGACTGTGGCCAGATTGTGTGG
GGGCTGGCCTTCAGCCCGTGGCCCTCTCCACCCAGCAGGAAACTCTGGGCACGTCACCATCCCCAGGCGCCTGATGTTTC
TTGCCTGATCCTGGCCACAGGTCTCAACGATGGGCAGATCAAGATTTGGGAGGTACAGACAGGCCTCCTGCTTCTGAATC
TTTCTGGCCACCAAGACGTCGTGAGAGATCTGAGCTTCACGCCCAGCGGCAGTTTGATTTTGGTCTCTGCATCCCGGGAT
AAGACACTTCGAATTTGGGACCTGAATAAaCACGGTAAGCAGATCCAGGTGTTATCCGGCCATCTGCAGTGGGTTTACTG
CTGCTCCATCTCCCCTGACTGTAGCATGCTGTGCTCTGCAGCTGGGGAGAAGTCGGTCTTTCTGTGGAGCATGCGGTCCT
ACACACTAATCCGGAAACTAGAAGGCCACCAAAGCAGTGTTGTCTCCTGTGATTTCTCTCCTGATTCAGCCTTGCTTGTC
ACAGCTTCGTATGACACCAGTGTGATTATGTGGGACCCcTACACCGGCGcGAGGCTGAGGTCACTTCATCACACACAACT
TGAACCCACCATGGATGACAGTGACGTCCACATGAGCTCCCTGAGGTCCGTGTGCTTCTCACCTGAAGGCTTGTATCTCG
CTACGGTGGCAGATGACAGGCTGCTCAGGATCTGGGCTCTGGAACTGAAGGCTCCGGTTGCCTTTGCTCCGATGACCAAT
GGTCTTTGCTGCACGTTCTTCCCACACGGTGGAATTATTGCCACAGGGACGAGAGATGGCCATGTCCAGTTCTGGACAGC
TCCCCGGGTCCTGTCCTCACTGAAGCACTTATGCAGGAAAGCCCTCCGAAGTTTCCTGACAACGTATCAAGTCCTAGCAC
TGCCAATCCCCAAGAAGATGAAAGAGTTCCTCACATACAGGACTTTCTAGcagtgccggctccccacctcctgcagcag
cagcagtacaagggactggctaggatggagtcaggcagctcacactggaccagtgtggaccttccttcctcccatggcat
gtgcaagtaggtctgcgtgaccccacttctgtggtgccggccttacctcgtcttcatccgtggtgagcagccttcgtcag
tctagttgtgttgaagccaagtgcagttgtggatgttgctggggtaataaaggcaagcgggctccagagcctctctggtg
gcggccaagccacactcccttaactgggaagtacctgccacgtagggcatttctgctgcctatttccagccagcggctgc
atggtttgaagttcctccgttgtggtcagaagaactctggtgtttggttccctgctcagctgcgcgtggactgggctgag
ctcctcaccatacactagtgccggcttttgtttcctgtaaacagtggttgcatgtgtagagaagtaacaagcgagtattc
agatcatacgaggaggcgttcctcggtgcatgacggtcagatggccatttatcagcatatttatttgtatttctcagca
catagtaaggtacaactgtgttttctcaattgtctcgaaaaaacagagttcttaagtggcccagttgtggagccaagtct
aagtcgtgtggagtcagtgctgacatcactggcttgtgctgtctgtcacatgtgtttgtctctgctgcttgacctcatgg
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tcaagacgcctcacacaaaatctgccttagaaagttaatatattttaaattatttaaaagaaactcaacatcttattct
ttggcctttcttaattgatgctttatggaggcagtgttaacattgtacagtgtatgcatagaggagtctcctctatttga
agaacaatgcaaaatgaggctttcattgaagggaaaaaaaaaaaaaaaa

FIGURE 23B

MEAGEEPLLLAELKPGRPHQFDWKSSCETWSVAFSPDGSWFAWSQGHCVVKLVPWPLEEQFIPKGFEAKSRSSKNDPKGRG
SLKEKTLDCGQIVWGLAFSPWPSPPSRKLWARHHPQAPDVSCLILATGLNDGQIKIWEVQTGLLLLNLSGHQDVVRDLSFT
PSGSLILVSASRDKTLRIWDLNKHGKQIQVLSGHLQWVYCCSISPDCSMLCSAAGEKSVFLWSMRSYTLIRKLEGHQSSVV
SCDFSPDSALLVTASYDTSVIMWDPYTGARLRSLHHTQLEPTMDDSDVHMSSLRSVCFSPEGLYLATVADDRLLRIWALEL
KAPVAFAPMTNGLCCTFFPHGGIIATGTRDGHVQFWTAPRVLSSLKHLCRKALRSFLTTYQVLALPIPKKMKEFLTYRTF*

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FIGURE 24

h6.1

GACACTGCATCGTCAAACTGATCCCCTGGCCGTTGGAGGAGCAGTTCATCCCTAAAGGGTTTGAAGCCAAAAGCCGAAGTA
GCAAAAATGAGACGAAAGGGCGGGGCAGCCCAAAAGAGAAGACGCTGGACTGTGGTCAGATTGTCTGGGGGCTGGCCTTCA
GCCTGTGNCTTTCCCCACCCAGCAGGAAGCTCTGGGCACGCCACCACCCCCAAGTGCCCGATGTCTCTTGCCTGGTTCTTG
CTACGGGACTCAACGATGGGCAGATCAAGATCTGGGAGGTGCAGACAGGGCTCCTGCTTTTGAATCTTTCCGGCCACCAAG
ATGTCGTGAGAGATCTGAGCTTCACACCCAGTGGCAGTTTGATTTTGGTCTCCGCGTCACGGGATAAGACTCTTCGCATCT
GGGACCTGAATAAACACGGTAAACAGATTCAAGTGTTATCGGGCCACCTGCAGTGGGTTTACTGCTGTTCCATCTCCCCAG
ACTGCAGCATGCTGTGCTCTGCAGCTGGAGAGAAGTCGGTCTTTCTATGGAGCATGAGGTCCTACACGTTAATTCGGAAGC
TAGAGGGCCATCAAAGCAGTGTTGTCTCTTGTGACTTCTCCCCCGACTCTGCCCTGCTTGTCACGGCTTCTTACGATACCA
ATGTGATTATGTGGGACCCCTACACCGGCGAAAGGCTGAGGTCACTCCACCACACCCAGGTTGACCCCGCCATGGATGACA
GTGACGTCCACATTAGCTCACTGAGATCTGTGTGCTTCTCTCCAGAAGGCTTGTACCTTGCCACGGTGGCAGATGACAGAC
TCCTCAGGATCTGGGCCCTGGAACTGAAAACTCCCATTGCATTTGCTCCTATGACCAATGGGCTTTGCTGGCACATTTTTT
CCACATGGTGGAGTCATTGCCACAGGGACAAGAGATGGCCACGTCCAGTTCTGGACAGCTCCTAGGGTCCTGTCCTCACTG
AAGCACTTATGCCGGAAAGCCCTTCGAAGTTTCCTAACAACTTACCAAGTCCTAGCACTGCCAATCCCCAAGAAAATGAAA
GAGTTCCTCACATACAGGACTTTTTAAGCAACACCACATCTTGTGCTTCTTTGTAGCAGGGTAAATCGTCCTGTCAAAGGG
AGTTGCTGGAATAATGGGCCAAACATCTGGTCTTGCATTGAAATAGCATTTCTTTGGGATTGTGAATAGAATGTAGCAAAA
CCAGATTCCAGTGTACTAGTCATGGATTTTTC

h6.2

ACCATGGTTCCAAGWTCCTCTCCYKCCTGTGGTCMRAAGTTGCYYCCGAATGTTGGGCCCAAGTGCCTTTTCYCTCCTTGG
GCCTCCCCTTCTGACCTGCAGGACAGTTTTCCYGGAGCCCATTTGGTATGAGGTATTAAWTTAGCCTTAACTAAATTACAG
GGGACTCAGAGGCCGTGCTCCTGACCGATCCAGACACTATTTTTTTTTTTTTTTTTAACAATGGTGTGCATGTGCAGGAA
ATGACAAATTTGTATGTCAGATTATACAAGGATGTATTCTTAAACCGCATGACTATTCAGATGGCTACTGAGTTATCAGTG
GCCATTTATTAGCATCATATTTATTTGTATTTTCTCAACAGATGTTAAGGTACAACTGTGTTTTTCTCGATTATCTAAAAA
CCATAGTACTTAAATTGAAAAAAAAAA

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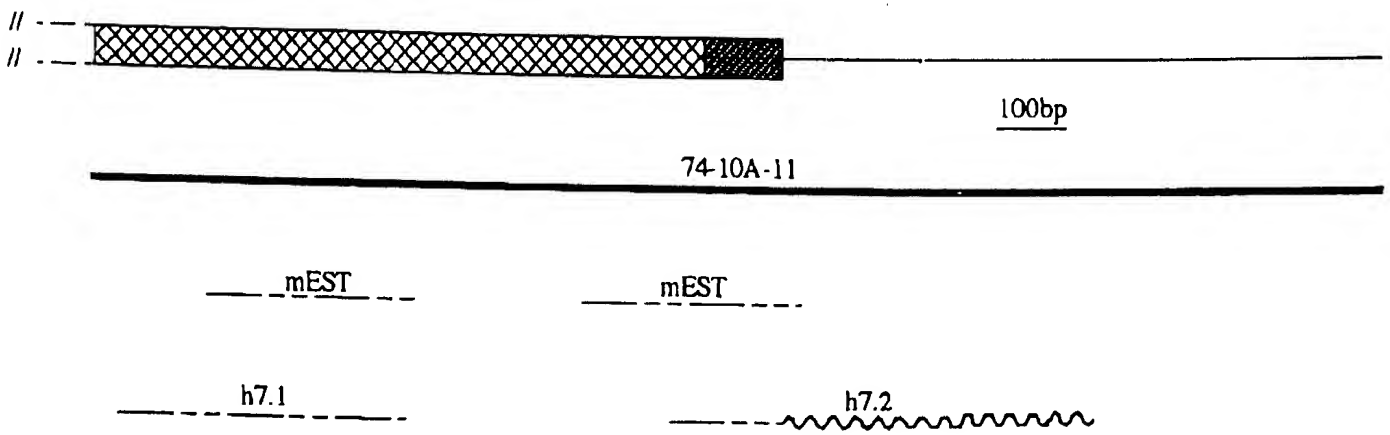
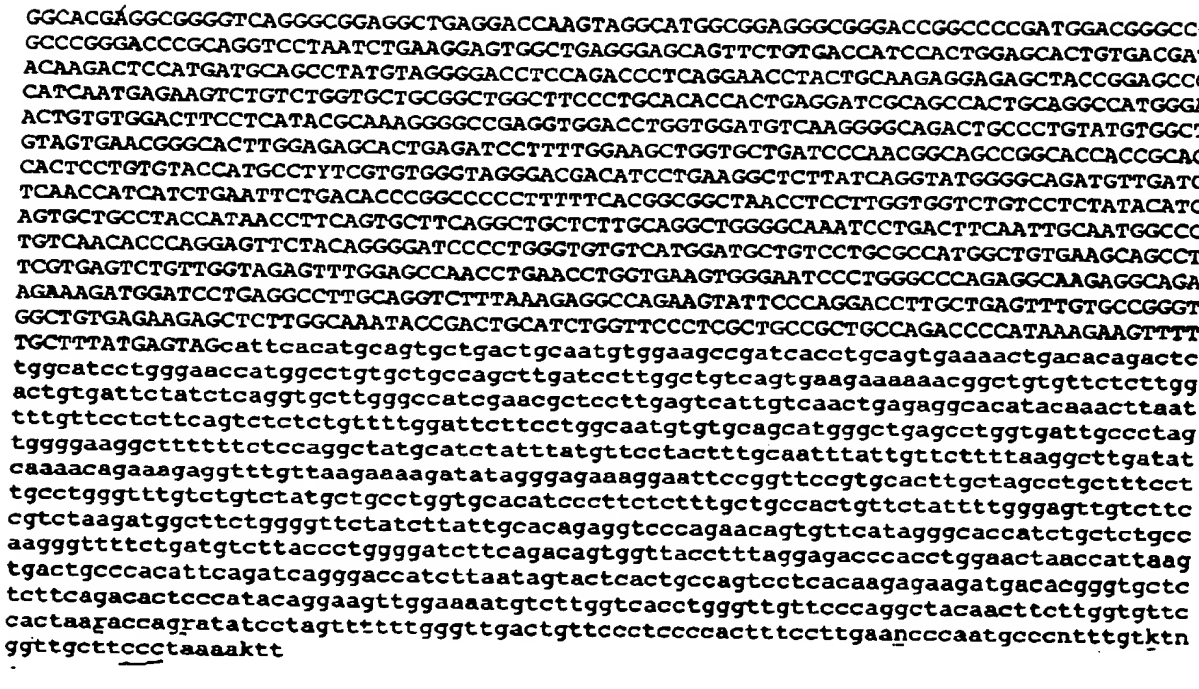


FIGURE 25

FIGURE 26A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ACAAGACTCCATGATGCAGCCTATGTAGGGGACCTCCAGACCCTCAGGAACCTACTGCAAGAGGAGAGCTACCGGAGCCG
CATCAATGAGAAGTCTGTCTGGTGCTGCGGCTGGCTTCCCTGCACACCACTGAGGATCGCAGCCACTGCAGGCCATGGGA
ACTGTGTGGACTTCCTCATACGCAAAGGGGCCGAGGTGGACCTGGTGGATGTCAAGGGGCAGACTGCCCTGTATGTGGCT
GTAGTGAACGGGCACTTGGAGAGCACTGAGATCCTTTTGGAAGCTGGTGCTGATCCCAACGGCAGCCGGCACCACCGCAG
CACTCCTGTGTACCATGCCTYTCGTGTGGGTAGGGACGACATCCTGAAGGCTCTTATCAGGTATGGGGCAGATGTTGATG
TCAACCATCATCTGAATTCTGACACCCGGCCCCCTTTTTCACGGCGGCTAACCTCCTTGGTGGTCTGTCCTCTATACATC
AGTGCTGCCTACCATAACCTTCAGTGCTTCAGGCTGCTCTTGCAGGCTGGGGCAAATCCTGACTTCAATTGCAATGGCCC
TGTCAACACCCAGGAGTTCTACAGGGGATCCCCTGGGTGTGTCATGGATGCTGTCCTGCGCCATGGCTGTGAAGCAGCCT
TCGTGAGTCTGTTGGTAGAGTTTGGAGCCAACCTGAACCTGGTGAAGTGGGAATCCCTGGGCCCAGAGGCAAGAGGCAGA
AGAAAGATGGATCCTGAGGCCTTGCAGGTCTTTAAAGAGGCCAGAAGTATTCCCAGGACCTTGCTGAGTTTGTGCCGGGT
GGCTGTGAGAAGAGCTCTTGGCAAATACCGACTGCATCTGGTTCCCTCGCTGCCGCTGCCAGACCCCATAAAGAAGTTTT
TGCTTTATGAGTAGcattcacatgcagtgctgactgcaatgtggaagccgatcacctgcagtgaaaactgacacagactc
tggcatcctgggaaccatggcctgtgctgccagcttgatccttggctgtcagtgaagaaaaaacggctgtgttctcttgg
actgtgattctatctcaggtgcttgggccatcgaacgctccttgagtcattgtcaactgagaggcacatacaaacttaat
tttgttcctcttcagtctctctgttttggattcttcctggcaatgtgtgcagcatgggctgagcctggtgattgccctag
tggggaaggctttttctccaggctatgcatctatttatgttcctactttgcaatttattgttctttaaggcttgatat
caaaacagaaagaggtttgttaagaaaagatatagggagaaaggaattccggttccgtgcacttgctagcctgctttcct
tgcctgggtttgtctgtctatgctgcctggtgcacatcccttctctttgctgccactgttctatttggagttgtcttc
cgtctaagatggcttctggggttctatcttattgcacagaggtcccagaacagtgttcatagggcaccatctgctctgcc
aagggttttctgatgtcttaccctggggatcttcagacagtggttacctttaggagacccacctggaactaaccattaag
tgactgcccacattcagatcagggaccatcttaatagtactcactgccagtcctcacaagagaagatgacacgggtgctc
tcttcagacactcccatacaggaagttggaaaatgtcttggtcacctgggttgttcccaggctacaacttcttggtgttc
cactaagaccagratatcctagttttttgggttgactgttccctccccactttccttgaancccaatgcccntttgtktn
ggttgcttccctaaaaktt

FIGURE 26B

....ARGGVRAEAEDQVGMAEGGTGPDGRAGPGPAGPNLKEWLREQFCDHPLEHCDDTRLHDAAYVGDLQTLRNLLQEESY
RSRINEKSVWCCGWLPCTPLRIAATAGHGNCVDFLIRKGAEVDLVDVKGQTALYVAVVNGHLESTEILLEAGADPNGSRHH
RSTPVYHAXRVGRDDILKALIRYGADVDVNHHLNSDTRPPFSRRLTSLVVCPLYISAAYHNLQCFRLLLQAGANPDFNCNG
PVNTQEFYRGSPGCVMDAVLRHGCEAAFVSLLVEFGANLNLVKWESLGPEARGRRKMDPEALQVFKEARSIPRTLLSLCRV
AVRRALGKYRLHLVPSLPLPDPIKKFLLYE*

FIGURE 27

h7.1

GCATCCATGGCGGAGGGCGGCAGCACGACGGGCGGGCAGGGCCGGGCTCCGCAGGTCGTAATCTGAAGGAGTGGCTGAGG
GAGCAATTTTGTGATCATCCGCTGGAGCACTGTGAGGACACGAGGCTCCATGATGCAGCTTACGTCGGGGACCTCCAGAC
CCTCAGGAGCCTATTGCAAGAGGAGAGCTACCGGAGCCGCATCAACGAGAAGTCTGTCTGGTGCTGTGGCTGGCTCCCCT
GCACACCGTTGCGAATCGCGGCCACTGCAGGCCATGGGAGCTGTGTGGACTTCCTCATCCGGAAGGGGGCCGAGGTGGAT
CTGGTGGACGTAAAAGGACAGACGGCCCTGTATGTGGCTGTGGTGAACGGGCACCTAGAGAGTACCCAGATCCTTCTCGA
AGCTGGCGCGGACCCCAAC

h7.2

GAGGAAGAAGAAAAGTGGACCCTGAGGCCTTGCAGGTCTTTAAAGAGGCCAGAAGTGTTCCCAGAACCTTGCTGTGTCTG
TGCCGTGTGGCTGTGAGAAGAGCTCTTGGCAAAMACCGGCTTCATCTGATTCCTTCGCTGCCTCTGCCAGACCCCATAAA
GAAGTTTCTACTCCATGAGTAGACTCCAAGTGCTGCGGTTGATTCCAGTGAGGGAGAAAGTGATCTGCAGGGAGGTGGAC
ACCGAGCCCTGAGTGCTGTGCTGCTGCTGGTCTCCTGATGGCTGTTGCTGCAGAAGATGTCCTCGTAGACTGTCATTGCT
CCTCAGGTGCCTGGGCCGCTGAACAGTCCTTGGGTCATTGTCAGCTGAGAGGCTTATACTAAAGTTATTATTGTTTTTCC
CAAGTTCTCTGTTCTGGATTTTCAGTTGCATATTAATGTAACGGGCCATGGGGTATGTACATGTAGGGGCTGAGGTTGGA
GGCCTACTAATTTCCTGTAGGGAAGACTCCCAGCACTTCTGGAACTGTGCTTCTCTTTATTTTTCTACTTCTCAATTTGA
TGGTTCGATTAAAGCCTTCTAGTATCTCAATGAAAA

FIGURE 28

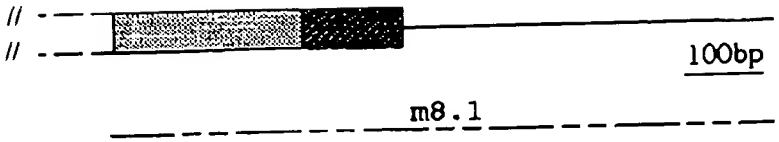

FIGURE 29A

CTGATGTCCGCAATTCTGAAGGTTGGACACCACTGCTGGCTGCCTGTGACATCCGCTGTCAATCCCCAAAGGATGCTGAG
GCCACCACCAACCGCTGTTTTCAACTGTGCCGCTTGCTGCTGTCTGTGGGGGCAGATGCTGATGAATACATACCGTGTAG
TTCAGCTTCCTGAGGAGGCCAAGGgCTTGGTGCCACCAGAGATTCTACAGAAGTACCATGGATTCTACTCTTCCCTCTTT
GCCTTGGTGAGGCAGCCCAGGTCGCTGCAGCATCTCTGCCGTTGTGCGCTCCGCAGTCACCTGGAGGGCTGTCTGCCCCA
TGCACTACCGCGCCTTCCCCTGCCACCGCGCATGCTCCGCTTTCTGCAGCTGGACTTTGAGGATCTGCTCTACTAGgctt
gctgccctgtgaacaaagcagaccccacccccacccccaagggcatctctcagcaatgaatgatgcaaggcggtctgtctt
caagtcaggagtggacgccttgatccacacttgagagaagaggccagatcagcaccyggctggtagtgatngcagagggc
acctgtgcagatctgtgtgcgcactggaaatctctaggctgaaggcyagagcaaatggtgcargtgttagtccttgggan
gagagacaganggtgagaaagcaagacagaggtgagagtgcacatgtcaagtggtagattgccttaaaagaaagctaaaa
aaagaaaaagattcgggcgaacttctttaggggtaatgctgcagcgtgttaaactgactgaccagcgtccatatctttgg
acccttcccgggtgaaaaagccccttcatcctccagcgctccccaagggtgcttagcaataccgggtgcttttctgccgc
aaagtgagttaccaaa

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FIGURE 29B

....MSAILRVGHHCWLPVTSAVNPQRMLRPPPTAVFNCAACCCLWGQMLMNTYRVVQLPEEAKGLVPPEILQKYHGFYS
SLFALVRQPRSLQHLCRCALRSHLEGCLPHALPRLPLPPRMLRFLQLDFEDLLY*

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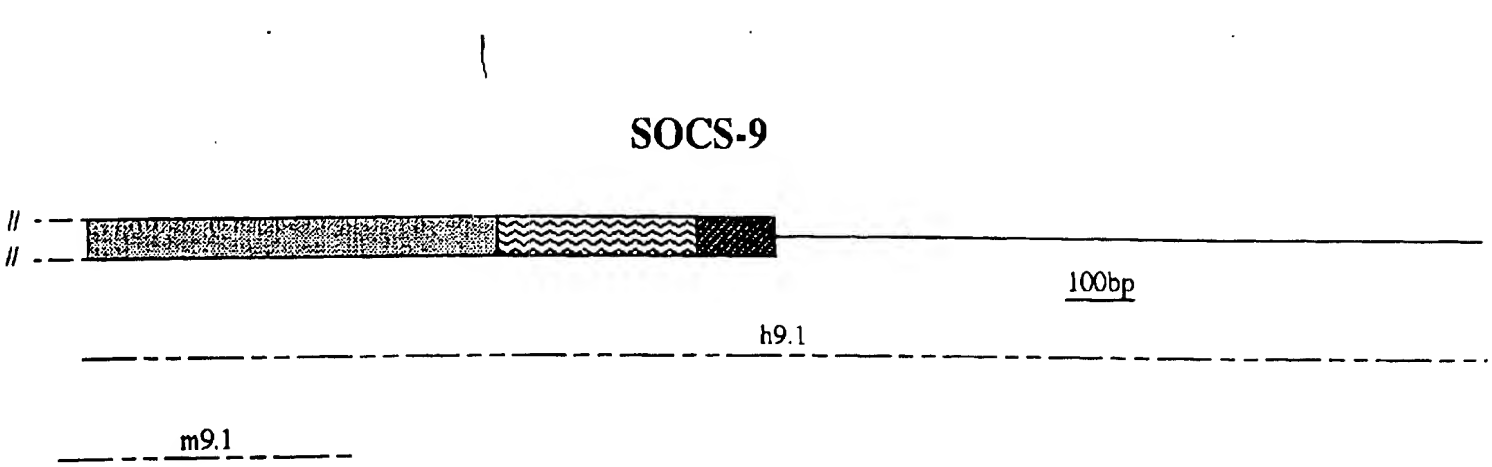

FIGURE 30

FIGURE 31

GTGGGGGCGTCATCATGACCTCCTCTAGGGCTCTGCAACATGACTCCTGTGGTGCAAATCAACAAATTGTTCACTGATGA
ATCCACAAGGATCTCTGGGCCTACAACCAGGTCCTGGTCCACATGACTGTCGTCTTCGGAGAAGGCACCACTCGCCCCCG
GCAGGTACGGCTGACACCTCCATGGGAGAAGACGTATCCAGGCAGCAGCTGCGCGGCCCTTCAAGAGGGCACATCCCGTC
ATCTAAAGGCACGGTGTACTGAAGGTAGTCCTGAGACATGAGTCCGATTACTACAGGCACGTGTTCCTCCAGGTGGAGGC
TCAGGTCCCCGGGTGAGCTGGGGCTGCAGCGGGACTCAGGGCGCGGCTCTGGCTGCAGGTCTCGCAGCTCCCTGGGCTGT
AGCTCCCGCAGATCCTTGCGCACACCGTTGACTGGT

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FIGURE 32

TTAATAGTACCTACATAGTAGAAAATTATAACTCCACTTTAAAACAATGTTTTCTTTCTATTCAAATCAATTTAAAACTTT
TTATAAACATTAATGTTGCAAGAGAATCCAGTCCATTTATGAAAATTAGTTGACAATCAAGTTCACCCAAGAAAATGTTGA
CTAAGCTAAAGAAATCACAGATAAAACATTTTACCAAAAGGATAGGTAACACACAAAAAAATGCTATCACAGGAAGCTNAT
GATCATCTAATATTTCTTTAATAATAATTCTAGTTCCATAGGTTTTCATGTTATGCCAATTTGTACCCGAGTTTAATTACA
GAAAAGGCAACAATTTCTAAATTGGTGGTATACATTTCTTTACAATTTTTTAATGTAAGGCCATTTATTAAAATAGACAAA
CTAGAAGATGAAAACGAAGGCAACAGAAAAATTCAACTTTTCACAACCAAAAGAATTAGCACAACCTTAGAAATAATTTAG
AAAAAAGTGTTGTTAAAAGATATGTTGCAGATCTCCGTTCCATTACCCAAGATTATGTCAATTCACGATTCTAAATAAATC
TTTTTAAAGTAAGAGATTAAAAACTCATCTTCAGTGTATATGTAAATTCCGTGGTTTTATCACACAGGTATGTTTATTCAA
CACTGKCTTTGGAAANTGGACCATTTAAAAGGACATGGCAATTTCCATTCTGTTAAGTTTCATTCAACCTTTACTTAGGGG
TTGRATTACCACATGAAATGNTGCTTTTAATGCATAAAAATCACAGTGGATTAGCCAGCAAAAGGGACTGGGCGGGGGGGG
CATTGAGGAGAATTTGATAATTCACATTGTGATTATTCTGCACATTGATGAAACATAATTCACACCTCTAAAACCTCAAGA
CTTCCCTTTTTTAAAGAACCAAAATAAACCCAAGACACCTTGCTGACACTTCCCCACCCCTAAACAAACTGATGACTCTTT
TACACATAAAACTGAAATAGTTATGGCAGCAAAAGATTTTGATGGCAATGAAAGTTTGTAAACTGTATTTCAATCTCTTGT
TCTTATTCCCAAAGTGCAAGATGCAGGGTTCTCAATCTTTCAGTAGTGCTTCTCCTGTAAATAATCCTTCATTTTGTTTGG
CAAAGGCAGTTTCTGAATTAAGTCTATTCTGGTATACTGACGTATAACAAAACGACACAGGTACTGCAACGAGCGCACCTS
SATGAACNCCCGRGAACACTGGSTTGGYCAAGTTCTNGACRRGGKAAGKTGCATGATTCCAGGCAGCYGAGACCTTGAATAA
CAAAAAGCTCCCATTTTCAGAGTCCCTGATTGAATGCTCCAATTAGATCAACTATGGACGTATGTCCTTCCACATCNGGCT
GTTCATAAAAGCTAAACCTACCATTTGAGTGCTCAATTCTAGTGTGAAGTGTTTTACCATGGGAGCGAAAGTCACAGCTTA
AAAGGTAACGGTCGTCAGAACTGTCCCGAACAAGAAAAGAACCATCTGGCACGTTTGCTAGCTTCCCTTCTGCCTCCCAAC
GTGTGATTGGTCCCCAGTACCATCCTTGCTTTGCAAGTTTTTTCAGCTCCTCTGTAAGGCTTGTCACAACCATGGGACCAC
TACTTTGCACTGAGTCATAAACTCTTGCAACCCCAGGAGCAGAGTTCGGATCAAAATTCAAATGACAGCGCATAACTTTNC
AGCCACGTGGGGCTTTCTGTSCCAGTGAGTCCACTGAAAGTTCCCCTTTGGGATTTGGATTATTCCTGCATTGGAGNTAAC
CAATGGTGAAGATTGGAGGGACATCCATCGTGAACCCGCTCTCCGGGGTTCTGCAACATGACTCCCGTGGTGCCAATCAAC
AAGCCATTCACCGGACTGATCCACGAAGATCTCTGGGGCGACAACTAGGTCCTGGTCTACCTGACTCTCATCCTCGGGGAA
AGCGCGCCCTCCCACTTGAGGAGGAACCGCAGAGACTTCCATGGGAGAAGAGCTGTCCAGACAATAGCTCCGTGATCCTTC
CAAAGGATACATCCCCTCATCTAAAGGCACAGTATACTGAATGTAGTCCTGAGGCATAAGTCCAATAACGACAGGCACATG
TTCATCCAGGTGAAGATGCAGGTCTCCATTATGAGAAGCCGAGCTCTTCAGTGAATTGGCTTGCTCCTGGCACGTGGTCTC
AGACTGGAGGTCGT

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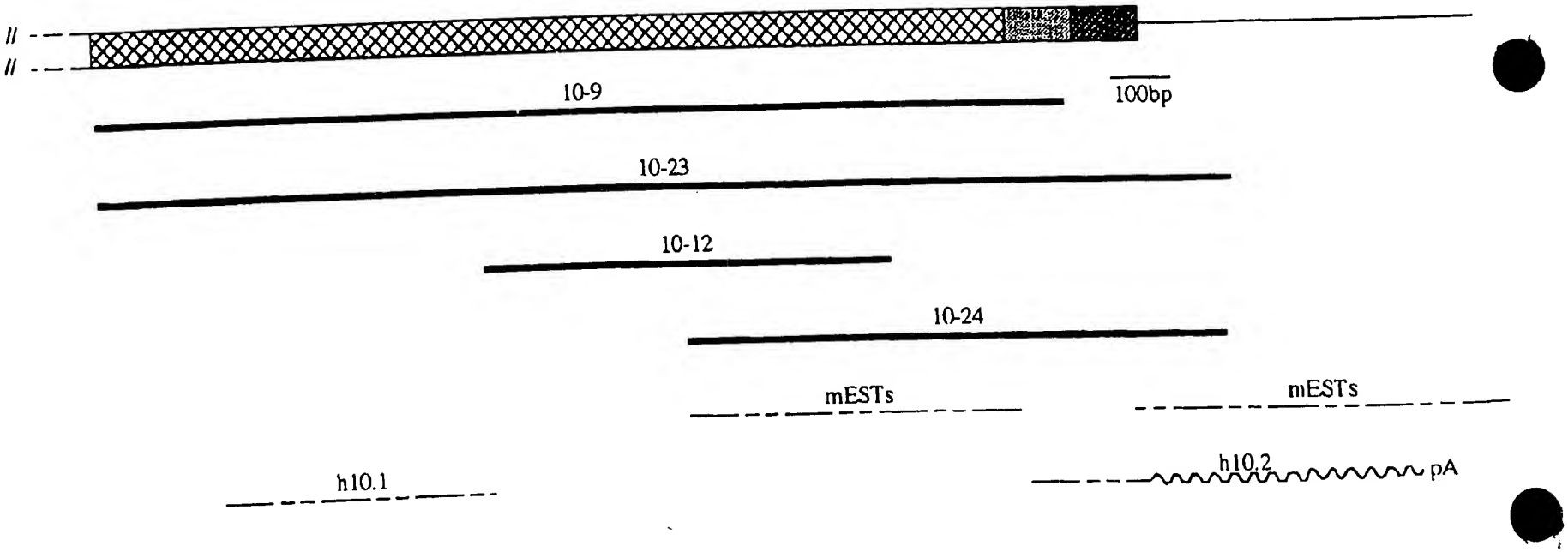

FIGURE 33

FIGURE 34

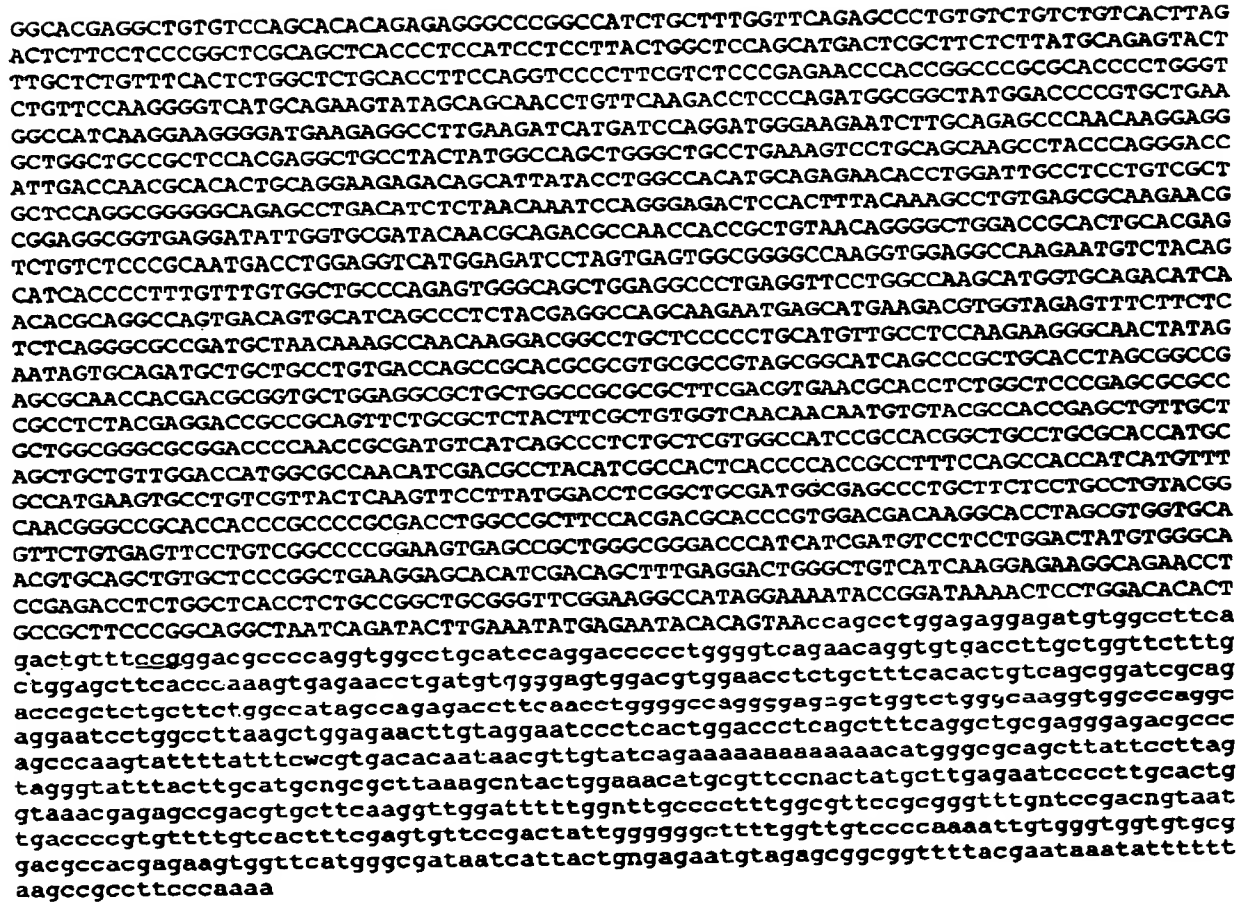

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FIGURE 35

h10.1
CCTCCTGAGAGTTCGCCGGCCCGGGCCCAATGGGnTTGTTCCAAGGGGTCATGCAGAAATACAGCAGCAGCTTGTTCAAG
ACCTCCCAGCTGGCGCCTGCGGACCCCTTGATAAAGGCCATCAAGGATGnCGATGAAGAGGCCTTGAAGACCATGATCAA
GGAAGGGAAGAATCTCGCAGAGCCCAACAAGGAGGGCTGGCTGCCGCTGCACGAGGCCGCATACTATGGCCAGGTGGGCT
GCCTGAAAGTCCTGCAGCGAGCGTACCCAGGGACCATCGACCAGCGCACCCTGCAGGAGGAAACAGCCGTTTACTTGGCA
ACGTGCAGGGGCCACCTGGACTGTCTCCTGTCACTGCTCCAAGCAGGGGCAGAGCGGGACATCTCCAACAAATCCCGAGA
GAnACCGCTCTACAAAGCCTGTGAGCGCAAGAACGCGGAAGCCGTGAAGATTCTTGGTGCAGCACAACGCAGACACCAAC
AACGCTGCAACCGGGCTG

h10.2
GTGCAGCTCTGCTCGCGGCTGAAGGAACACATCGACAGCTTTGAGGACTGGGCCGTCATCAAGGAGAAGGCAGAACCTCC
AAGACCTCTGGCTCACCTTTGCCGACTGCGGGTTCGAAAGGCCATTGGGAAATACCGTATAAAACTCCTAGACACCTTGC
CGCTCCCAGGCAGGCTGATTAGATACCTGAAATACGAGAACACCCAGTAACTGGGGCCACGGGGAGAGAGGAGTAGCCCC
TCAGACTCTTCTTACTAAGTCTCAGGACGTCGGTGTTCCCAACTCCAAGGGGACCTGGTGACAGAcGAGGCTGCAGGCTG
CCTCCCTCTCAGCCTGGACAGCTACCAGGATCTCACTGGGTCTCAGGGcCCAGAGCTTTGGCCAGAGCAGAGAACAGAAT
GTGTCAAGGAGAAGAATCATTTGTTTACAAACTGATGAGCAGATCCCAGACCTTCTCTACCTTCAGGAATGGCAGAAACC
TCTATTCCTGGGGCCAGGGCAGAGCTTGAGGTGTTCTGGGGAAGGTGGTGCTCAGAGCCTTCCCTGTGCCCCTCCACTTG
TCCTGGAAAACTCACCACTTGACTTCAGAGCTTTCTCTCCAAAGACTAAGATGAAGACGTGGCCCAAGGTAGGGGGTAGG
GGGAGCCTGGGTCTTGGAGGGCTTTGTTAAGTATTAATATAATAAATGTTACACATGTGAAAAAAAAAA

2615050.0

FIGURE 36A

TTGGAGAAGTGTGGTTGGTATTGGGGGCCAATGAATTGGGAAGATGCAGAGATGAAGCTGAAAGGGAAACCAGATGGTTCT
TTCCTGGTACGAGACAGTTCTGATCCTCGTTACATCCTGAGCCTCAGTTTCCGATCACAGGGTATCACCCACCACACTAGA
ATGGAGCACTACAGAGGAACCTTCAGCCTGTGGTGTCATCCCAAGTTTGAGGACCGCTGTCAATCTGTTGTAGAGTTTATT
AAGAGAGCCATTATGCACTCCAAGAATGGAAAGTTTCTCTATTTCTTAAGATCCAGGGTTCCAGGACTGCCACCAACTCCT
GTCCAGCTGCTCTATCCAGTGTCCCGATTCAGCAATGTCAAATCCCTCCAGCACCTTTGCAGATTCCGGATACGACAGCTC
GTCAGGATAGATCACATCCCAGATCTCCCACTGCCTAAACCTCTGATCTCTTATATCCGAAAGTTCTACTACTATGATCCT
CAGGAAGAGGTATACCTGTCTCTAAAGGAAGCGCAGCGTCAGTTTCCAAACAGAAGCAAGAGGTGGAACCCTCCACGTAGC
GAGGGGCTCCCTGCTGGTCACCACCAAGGGCATTTGGTTGCCAAGCTCCAGCTTTGAggaaccaaattaagctaccatgaa
aagaagaggaaaagtgagggaacaggaaggttgggattctctgtgcagagactttggttccccacgcaagccctggggctt
ggaagaagcacatgaccgtactctgcgtggggctccacctcacacccacccctgggcatcttaggactggaggggctcctt
ggaaaactggaagaagtctcaacactgtttctttttca

9674959.1

FIGURE 36B

....LEKCGWYWGPMNWEDAEMKLKGKPDGSFLVRDSSDPRYILSLSFRSQGITHHTRMEHYRGTFSLWCHPKFEDRCQSV
VEFIKRAIMHSKNGKFLYFLRSRVPGLPPTPVQLLYPVSRFSNVKSLQHLCRFRIRQLVRIDHIPDLPLPKPLISYIRKFY
YYDPQEEVYLSLKEAQRQFPNRSKRWNPPRSEGLPAGHHQGHLVAKLQL*

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FIGURE 37

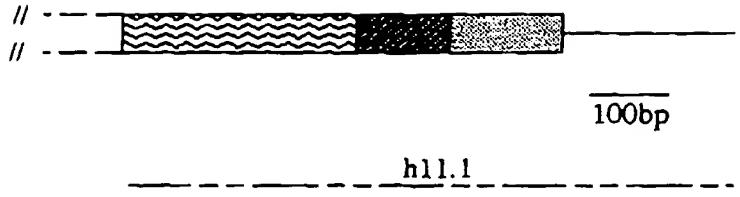

FIGURE 38

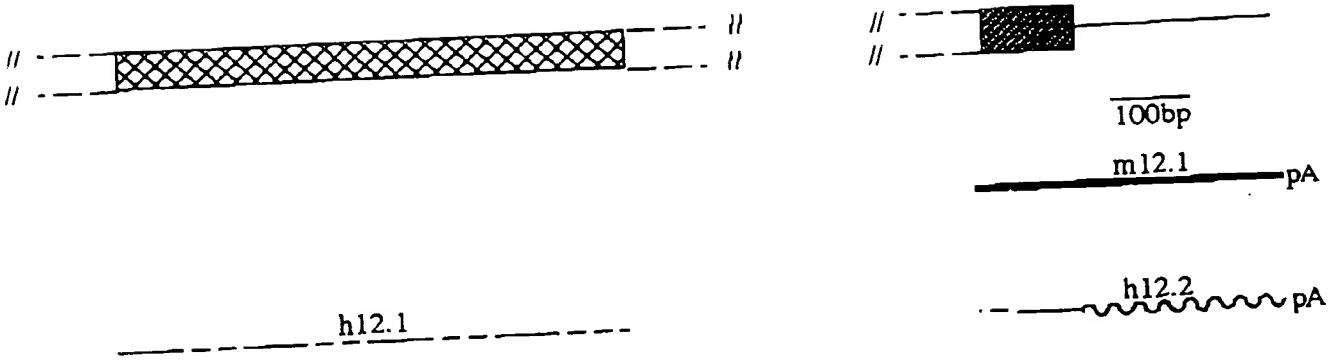

FIGURE 39

GTTCCAAGCCTAACCCATCTTTGTCGTTTGGAAATTCGGGCCAGTCTAAAAGCAGAGCACCTTCACTCTGACATTTTCAT
CCATCAGTTGCCACTTCCCAGAAGTCTGCAGAACTATTTGCTCTATGAAGAGGTTTTAAGAATGAATGAGATTCTAGAAC
CAGCAGCTAATCAGGATGGAGAAACCAGCAAGGCCACCTGAcacaggtcctttaattctgtttagtcacaaaagacggct
tgtgtgactgtttggatttggtgatcaaatgtccatgtttacagttgcttttcccagtttgtgtctttcccaatattgtg
aaccttatccatcttgccttactcagttttatttctagtgcactttgttgtgtattatttgtttacctgaccattttcta
ctttattctgctaataaactgtaattctgaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

Sequence - 09552680

FIGURE 40

GGGGATCGAAAGCGGGGGCTTCTGGGACGCAGCTCTGGAGACGCGGCCTCGGACCAGCCATTTCGGTGTAGAAGTGGCAG
CACGGCAGACTGGTCAAACAAATGGATTTTACAGAGGCTTACGCGGACACGTGCTCTACAGTTGGACTTGCTGCCAGGGA
AGGCAATGTTAAAGTCTTAAGGAAACTGCTCAAAAAGGGCCGAAGTGTCGATGTTGCTGATAACAGGGGATGGATGCCAA
TTCATGAAGCAGCTTATCACAACTCTGTAGAATGTTTGCAAATGTTAATTAATGCAGATTCATCTGAAAACTACATTAAG
ATGAAGACCTTTGAAGGTTTCTGTGCTTTGCATCTCGCTGCAAGTCAAGGACATTGGAAAATCGTACAGATTCTTTTAGA
AGCTGGGGCAGATCCTAATGCAACTACTTTAGAAGAAACGACACCATTGTTTTTAGCTGTTGAAAATGGACAGATAGATG
TGTTAAGGCTGTTGCTTCAACACGGAGCAAATGTTAATGGATCCCATTCTATGTGTGGATGGAACTCCTTGCACCAGGCT
TCTTTTCAGGAAAATGCTGAGATCATAAAATTGCTTCTTAGAAAAGGAGCAAACAAGGAATGCCAGGATGACTTTGGAAT
CACACCTTTATTTGTGGCTGCTCAGTATGGCCAAGCTAGAAAGCTTTGAAGCATACTTATTTCATCCGGGTGCAAATGTC
AATTGTCAAGCCTTGGACAAAGCTACC

h12.2
CACAAATGGGACCATACAAAAATCTTGGNACTTGTTAATAACCACTTNACTAACCGGGACCTGTGACACTGGGNCTAAAC
AAAGTAAGTCCCTGTTTACTCAGNCAGTGTTTGGGGGACATGAAGGATTGCCTAGNAAATATTACTCCGGAATGGTCTAC
AGCCCAGNACGCCCAGGCGTGCCTTGTTTTTGGATTCAGTTCTCCTGTGTGCATGGCTTTCCAAAAGGAGGTGGAGCTGT
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CTGACCCATCTTTGTCGTTTGGAAATTCGGTCCAGTCTAAAATCAGAACGTCTACGGTCTGACAGTTATATTAGTCAGCT
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GAGTACAAGTTTTTATGATTTTATAGTCAAAAGATGATTATTGATTGTCAGATAGGTTAGGTTTTGGGGGGCCAGTAGTT
CAGTGAGAATGTTTATGTTTACAACTAGCCTTCCCAGTAAAAAAAAAAAAAAAAAAAAAAAAA

26TEOT" 09529680

01-NOV-97 SAT 02:06 JOHN AND ANNIE HUGHES 562 556173 P.03

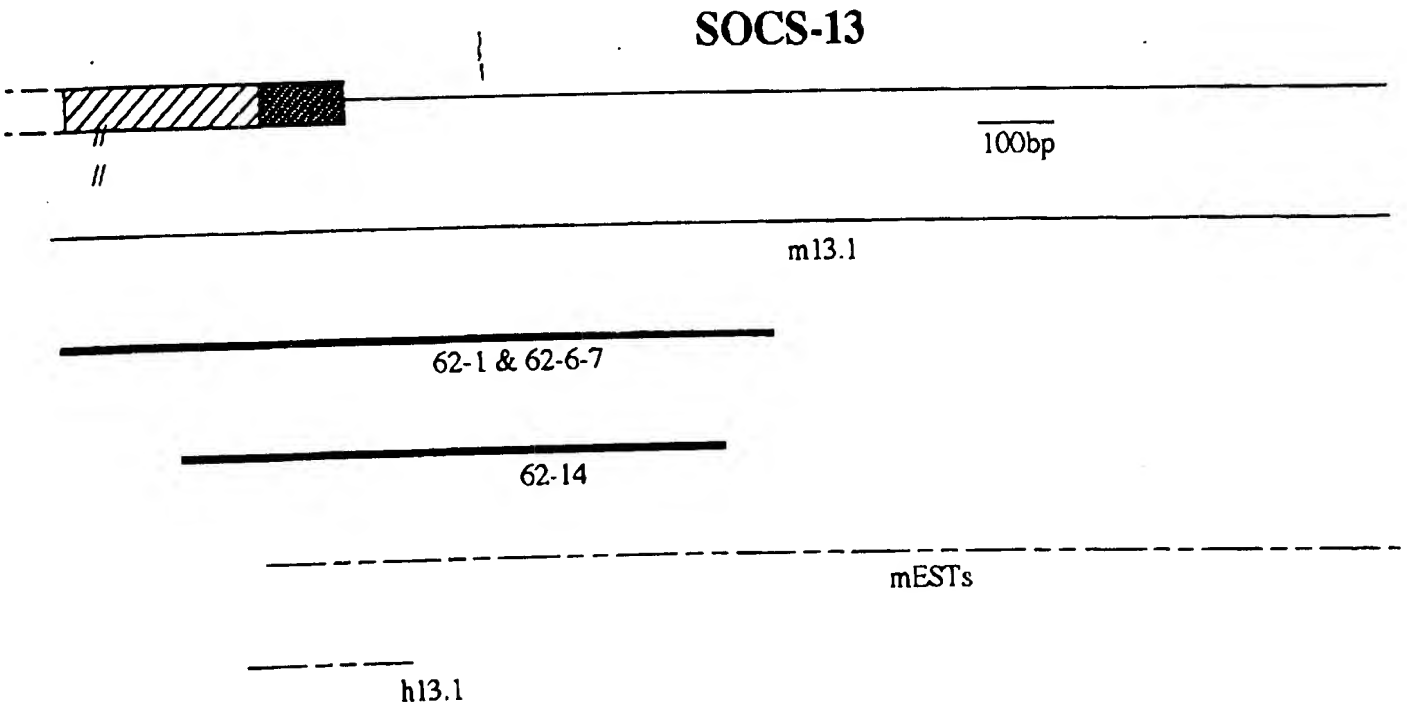

FIGURE 41

FIGURE 42A

CGGGGGGCTGGGACCTGGGGCGTAACCGTCTCTACCACGACGGCAAGAACCAGCCAAGTAAAACATACCCAGCCTTTCTG
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GGATGGACAGTACATGGGAGTGGCTTTCCGGGGACTCAAGGGTAAAAAGCTGTATCCTGTAGTGAGTGCCGTCTGGGGCC
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CGCCTAGCGCTGGGAAAAGAGCGCCTGGGTGCCATCCCCGCTCTGCCGCTACCTGCCTCCCTCAAAGCCTACCTCCTCTA
CCAGTGAtccacatcccaggaccgccatacgacagccatctggtgccaartcactgagcccgttggggtccgccgacccc
tgcgcctgggatggaygcccacctcagccatgggcagacgtgccccctcatcctaccggctgcctctgctgggggaacct
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aactatgaaaacctctctcaggcgccttctgctctcaggtggagtgggctgcccccccactctctgcagagagaggctaca
cccacctgggggtcctgggaggtaagactagtaggaggtgccagggctgartccaaaagcaggaatggccaggamcagg
ccatacagatgaagctcaggatgtcacataccatggacamtgagacagaaccccaggttggamttcccttgggccaacga
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ccacttagaaaggaaaccttggtgggtggyttccctcgatgtgctttcccccacctccctggaatgtgtgtgccacacct
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aaagctcaggaggctgaggcaggaggattgctgtcagtggtgtacagaggtcatggccatcctgggctatattaaacctt
gtcctttaagaaaaagaaaagaaatcaacttccattgaatctgagttctgctcatttctgcacaggtacaatagatgact
tkatttgttgaaaaatgkttaatatatttacmtatatatatatttgtaagaagcatt

FIGURE 42B

....GGWDLGRNRLYHDGKNQPSKTYPAFLEPDETFIVPDSFFVALDMXDGTLSFIVDGQYMGVAFRGLKGKKLYPVVSAV
WGHCEIRMRYLNGLDPEPLPLMDLCRRSVRLALGKERLGAIPALPLPASLKAYLLYQ*

SUBSTITUTE SHEET (RULE 26)

FIGURE 43

AAGGGTAAAAAACTGTATCCTGTAGTGAGTGCCGTCTGGGGCCACTGTNAGATCCGAATGCGCTACTTGAACGGACTCGAT
CCCGAGACNTGCCGCTCATGGATTTGTGCCGTCGCTCGGTGCGCCTGGCCCTGGGGAGGGAGCGCCTGGGGGAGAACCANC
NACCTGCCGCTGCCGGCTTCCCTCAAGGCCTACCTCCTCTACCAGTGACGTTCGCCATCATACCGCCAGCGCGACAGCCAC
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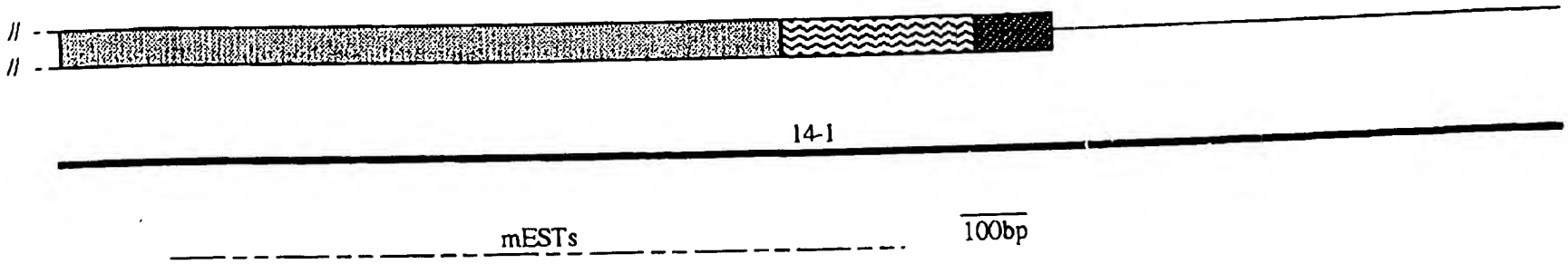
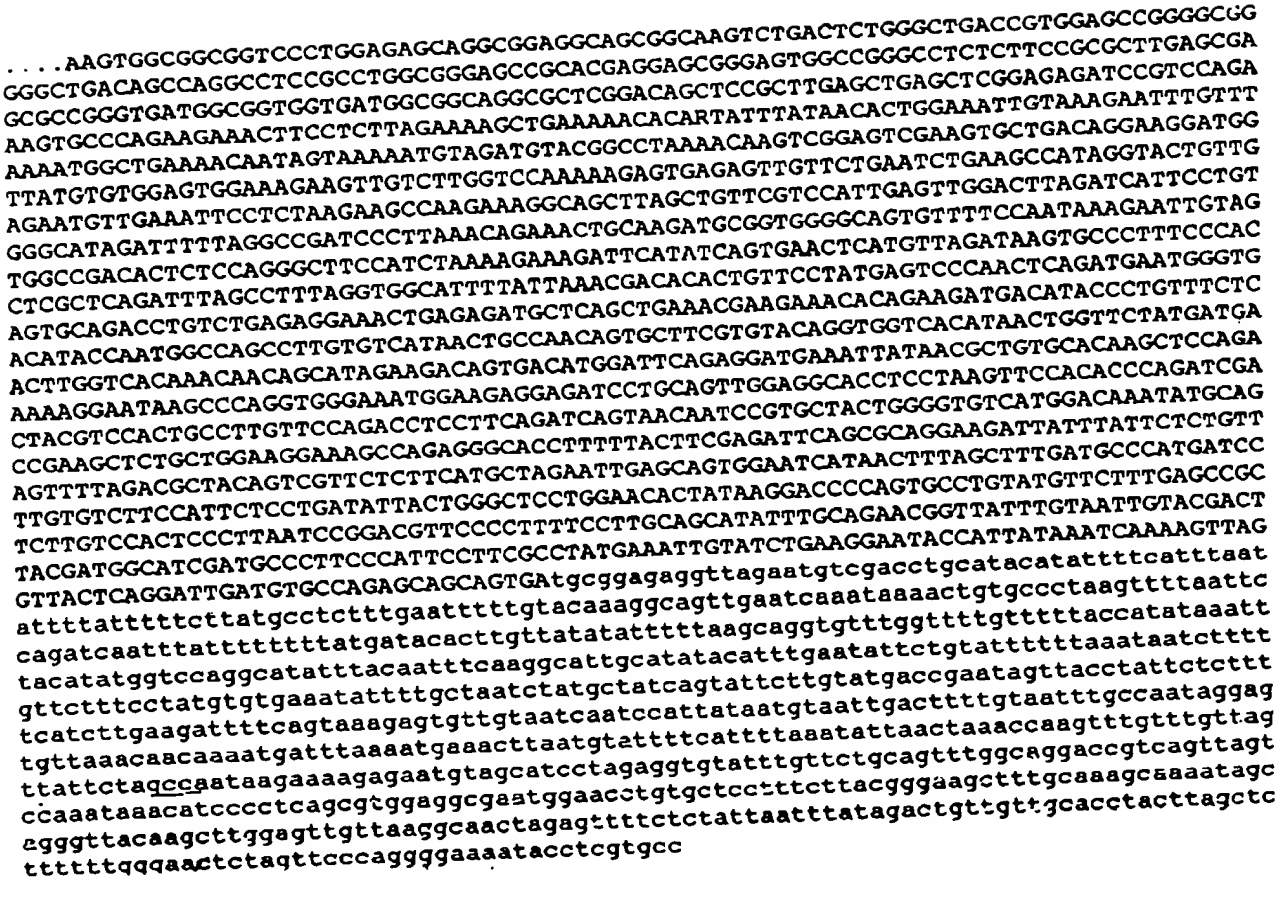


FIGURE 44

08962560 .103197

FIGURE 45A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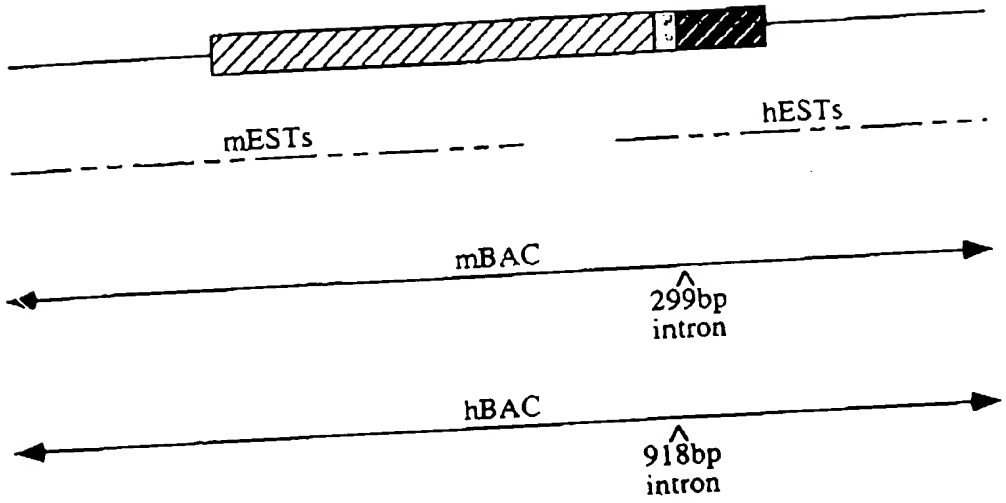
agggttacaagcttggagttgttaaggcaactagagttttctctattaatttatagactgttgttgcacctacttagctc
ttttttgggaactctagttcccaggggaaaatacctcgtgcc

FIGURE 45B

....SGGGPWRAGGGSGKSDSGLTVEPGRGLTARPPPGGSRTRSGSGRASLPRLSERRVMAVVMAAGARTAPLELSSERS
VQKVPRRNFLLEKLKNTXFITLEIVKNLFKMAENNSKNVDVRPKTSRSRSADRKDGYVWSGKKLSWSKKSESCSESEAIG
TVENVEIPLRSQERQLSCSSIELDLDHSCGHRFLGRSLKQKLQDAVGQCFPIKNCSGRHSPGLPSKRKIHISELMLDKCP
FPPRSDLAFRWHFIKRHTVPMSPNSDEWVSADLSERKLRDAQLKRRNTEDDIPCFSHTNGQPCVITANSASCTGGHITGS
MMNLVTNNSIEDSDMDSEDEIITLCTSSRKRNKPRWEMEEEILQLEAPPKFHTQIDYVHCLVPDLLQISNNPCYWGVMDK
YAAEALLEGKPEGTFLLRDSAQEDYLFSVSFRRYSRSLHARIEQWNHNFSFDAHDPCVFHSPDITGLLEHYKDPSACMFF
EPLLSTPLIRTFPFSLQHICRTVICNCTTYDGIDALPIPSPMKLYLKEYHYKSKVRLLRIDVPEQQ*

Docket No. 4036.1

FIGURE 46



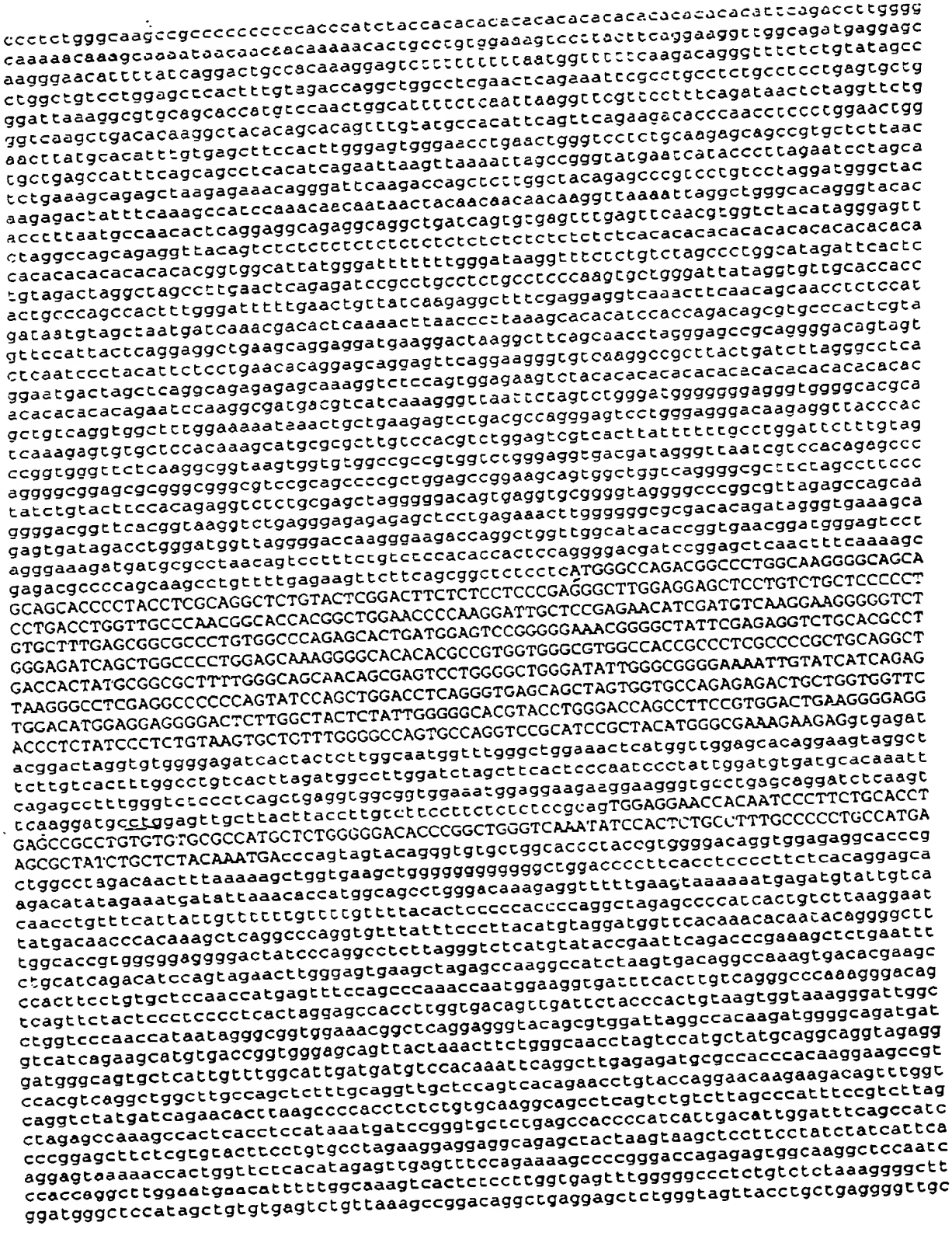


FIGURE 47A

FIGURE 47A (CONTINUED)

cgtcttgccagtcccaatggcccacacaggttcataggccaggaccaccttgctccagtctttcacattatctgtggggc
agagaggagagtgagtaggaaggagctgacccgccaagc

FIGURE 47B

MGQTALARGSSSTPTSQALYSDFSPPEGLEELLSAPPPDLVAQRHHGWNPKDCSENIDVKEGGLCFERRPVAQSTDGVRGK
RGYSRGLHAWEISWPLEQRGTHAVVGVATALAPLQADHYAALLGSNSESWGWDIGRGKLYHQSKGLEAPQYPAGPQGEQLV
VPERLLVVLDMEEGTLGYSIGGTYLGPAFRGLKGRTLYPSVSAVWGQCQVRIRYMGERRVEEPQSLLHLSRLCVRHALGDT
RLGQISTLPLPPAMKRYLLYK

Docket No. 4700-4

FIGURE 48A

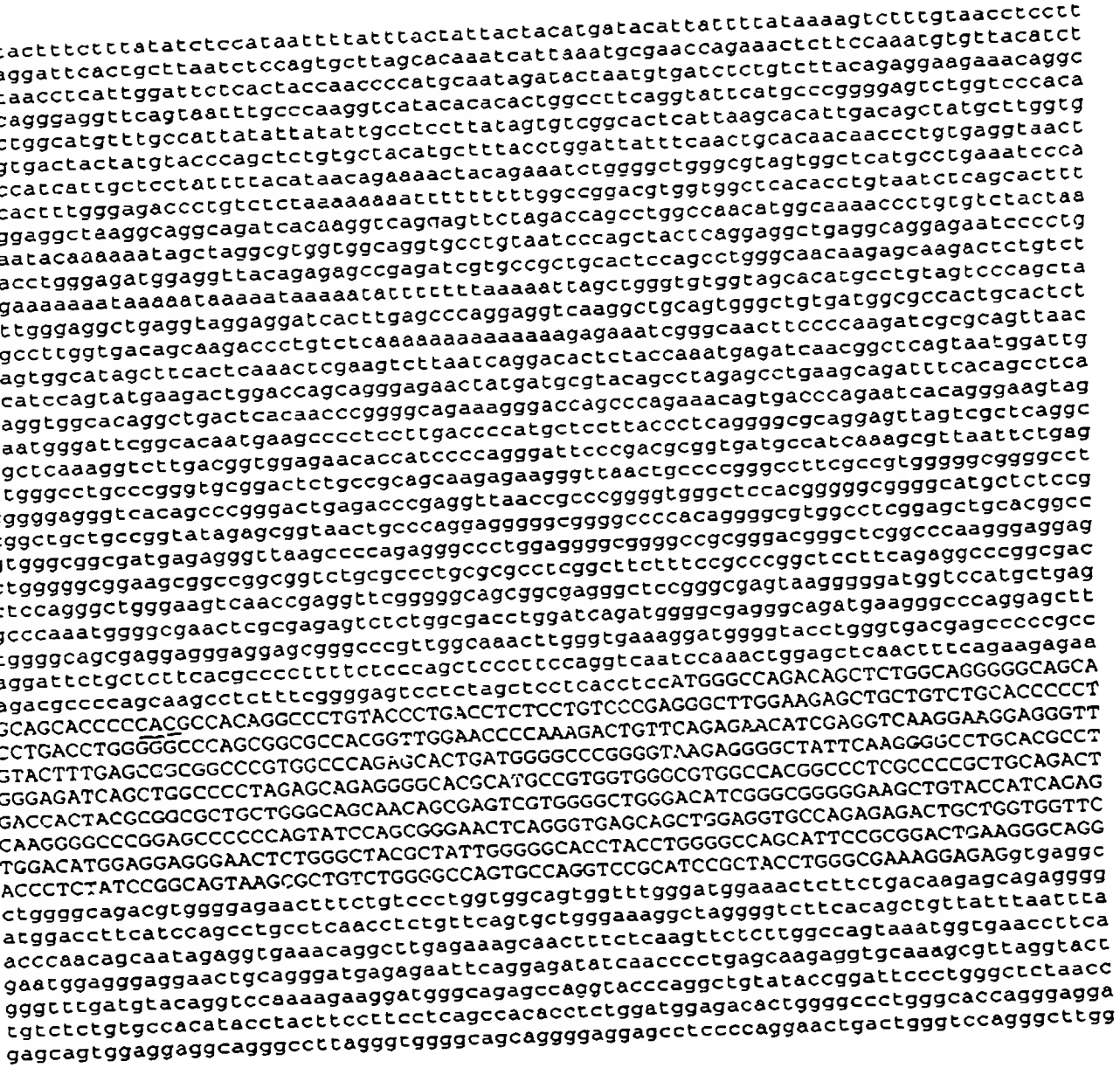


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FIGURE 48A (CONTINUED)

agctgctctctgcagttgtgtgggctgtagagtggagggccatccctcctcacctcagccccagctcccaagcctctgga
gtcaaagcctgggccagctccaccactgtcagagccaccttggcctgttgtttagagggccttagccagctcttcacccc
cagctctgactagggatgtgtgaaatcttatctgggaggcagaacttccgggtatctcaaattccccttttcagccaggtg
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CCTGGGGGATACCCGGCTCGGCCAGGTGTCTGCCCTGCCCTTGCCCCCTGCCATGAAGCGCTACCTGCTCTACCAGTGAg
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agggaggaagaaagggagccggcgttcaaggctatgacagtctgctacgcaaaacatttttcaagtaaaaatagtaaga
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agatggagggaagggtgaacaagaaagagctctccagccaggtttctccggagtacgaagaacggtggcctactgccccct
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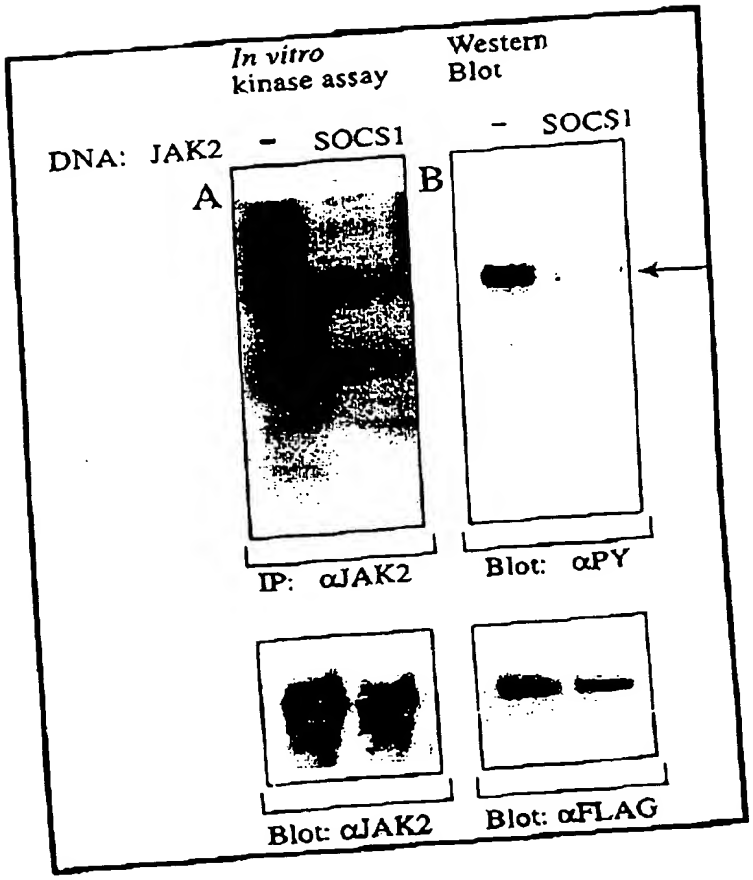
FIGURE 48B

MGQTALAGGSSSTPTPQALYPDLSCPEGLEELLSAPPPDLGAQRRHGWNPKDCSENIEVKEGGLYFERRPVAQSTDGARGK
RGYSRGLHAWEISWPLEQRGTHAVVGVATALAPLQTDHYAALLGSNSESWGWDIGRGKLYHQSKGPGAPQYPAGTQGEQLL
VPERLVVLDMEEGTLGYAIGGTYLGPAFRGLKGRTLYPAVSAVWGQCQVRIRYLGERRAEPHSLLHLSRLCVRHNLGDTR
LGQVSALPLPPAMKRYLLYQ

FIGURE 49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Western
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- SOCS1
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B
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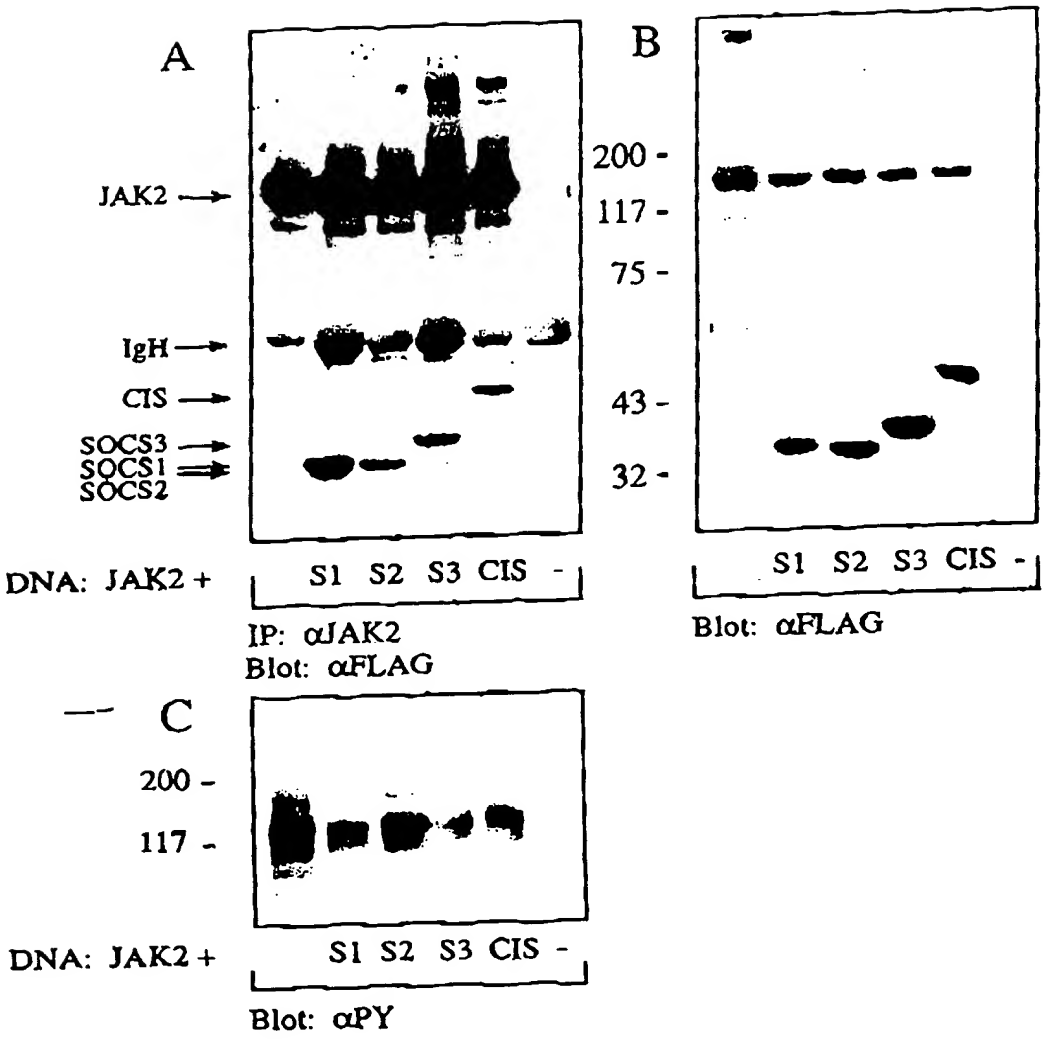
FIGURE 50